

THE ARCHITECTURAL RECORD

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TWENTY-
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THE
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TWENTY-
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CENTS



MARBLE GROUP—"JUSTICE."
U. S. POST OFFICE, CUSTOM HOUSE AND COURT HOUSE,
Cleveland, Ohio. Daniel C. French, Sculptor.

THE ARCHITECTURAL RECORD

Vol. XXIX.

MARCH, 1911

No. 3.



THE UNITED STATES POST OFFICE, CUSTOM HOUSE AND COURT HOUSE, CLEVELAND, OHIO

By HERBERT CROLY

WHENEVER ANY American, who is interested in good architecture, and particularly in the increasing excellence of our monumental public buildings, happens to visit Cleveland, he should not fail to make a complete and careful examination of that city's latest architectural acquisition—the new Federal Building. He will be repaid for such an examination from many different points of view. The new Federal Building in Cleveland is interesting, not only as an example of technical efficiency in architectural design; not only as one of the first and best fruits of better methods in the selection of the architects of Federal buildings, but also as an expression of high civic ideals and of perhaps the best organization in the United States of the effective public spirit resident in a community.

The building, as it now stands, would not have been possible in case contributions to its completion had not been made from all the three sources mentioned above; that is, from the skill of an individual architect, from the willingness of the Government to turn such skill to good account, and from the

determination of a group of public-spirited men in Cleveland to make it in every respect a credit to the community. The better methods now used by the General Government in seeking the designers of its buildings resulted in the selection of Mr. Arnold W. Brunner as the architect of a structure which was to provide an official residence for all the Federal officers at work in Cleveland; and Mr. Brunner, both by his training and by the testimony of his work, represents the highest technical standards of the American architectural profession. In preparing the plans for this building he had the advantage of building for a client who wants a sound and enduring structure and is willing to pay for it; but this general disposition of the General Government is sometimes attenuated in its expression by what may be called political economies. In case Mr. Brunner had not been supported in his need for increased appropriations both by local Congressmen and by influential local business men (who in case of necessity could be depended upon to go to Washington), he would never have had the money to

make the building an example to the rest of the country of the excellent use of the very best materials—from the foundations to the fixtures.

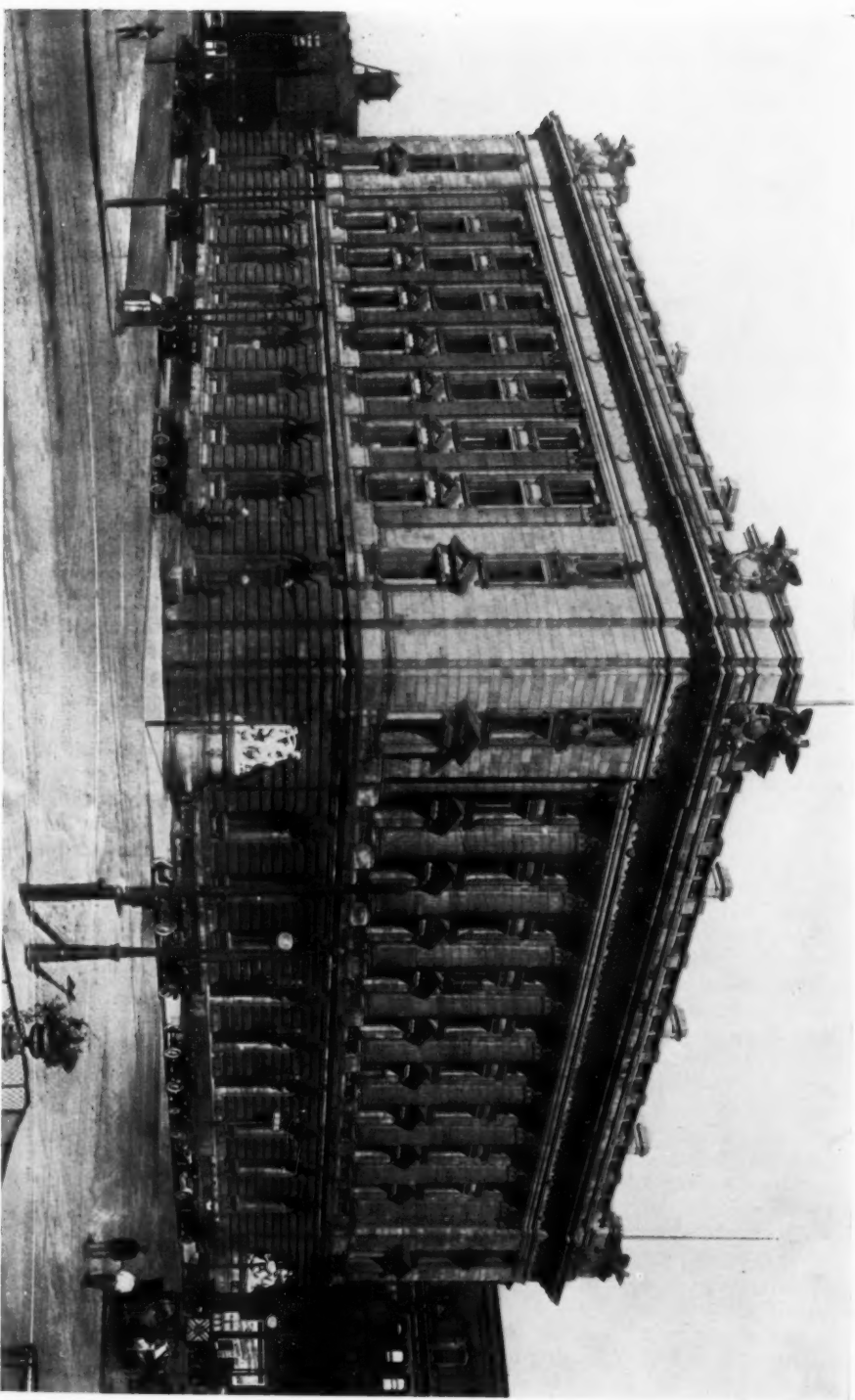
There was a reason for this peculiarly lively interest on the part of local public opinion in the new Federal Building, and there was a reason also why this interest received a peculiarly aggressive and efficient expression. The new Federal Building meant more to the city of Cleveland than a new post-office and court-house ordinarily means to any community, no matter how much its better members may be interested in the construction of creditable public edifices. Early in the history of the Cleveland Post-office it had been decided to make it one of a group of monumental buildings, which together should provide a habitation for every important function of local civic life. The success of this whole plan was contingent upon the effort to make the Federal Building a worthy member of the group, and, consequently, Mr. Brunner had behind him an amount of local interest and pride such as is rarely placed at the service of any architect—no matter how much he may do to deserve it.

So much of the success of the Federal Building is dependent upon its relation to the so-called "group plan" of Cleveland that some account of the origin and the nature of this plan is indispensable to a description of the building itself. During the past few years there has been a great deal of public discussion in many American cities about the adoption of some street plan which would both provide for the growth in local business and at the same time help to make the city a better place to live in and to look at. This discussion has been aroused by an increasing sense that as long as the plan and the appearance of American cities were determined by individual taste and interest, the city was bound to be both inconvenient and ugly, and it has resulted in many attempts to regulate the distribution of business and traffic in different American cities, to take full practical and aesthetic advantage of the land upon which the city is situated and to

group all public structures which may thereafter be built around a single center. In the majority of cases, particularly in the larger cities, no important practical results have been obtained as yet by these advocates of regulated and ordered municipal development, but Cleveland has been in this respect peculiarly fortunate. The plan which was early adopted in that city is by way of being carried out; and, when it is carried out, the new Federal Building will have its appropriate place on the most spacious and most beautiful public square, or rather mall, in the United States.

In the present connection there is neither space nor need to enter into a complete history of the Cleveland group plan, or to give a full description of its details and advantages. The idea of grouping a number of public buildings around a single center was first broached almost by accident some fourteen years ago by a local architect, and it proved to be a fruitful idea, because it was planted in fertile soil. It so happened that Cleveland was as a matter of fact almost wholly unprovided with monumental public buildings, while at the same time the city was growing sufficiently in population, wealth, and local pride to want a number of such buildings and to be able to pay for them. There was not only a Federal Post-office and Court-house to be erected, but a new City Hall, a County Court-house, and a Public Library were also needed. The idea of grouping all of these new public structures around a Square, which would thus become the center of the civic life of the community, although it was scouted at first, gradually took root; and, fortunately, it took root before any irretrievable mistakes had been made in the location or design of one or more of these buildings. That it did take root was due largely to the fact that Cleveland possessed an efficient and representative association, which was ready and able to seize the idea and make it prevail.

In almost all American cities the business men have formed Chambers of Commerce for the purpose of promot-



THE UNITED STATES POST OFFICE, CUSTOM HOUSE AND COURT HOUSE,
Cleveland, Ohio.
Arnold W. Brunner, Architect.

ing their joint interests in the growth and prosperity of the neighborhood; but particularly of late years the Chamber of Commerce in Cleveland has been something more than a commercial and business organization. Some of its more public spirited members were wise enough to understand that there were other ways of promoting the prosperity of a city than by offering inducements for population and business to settle within its limits. They conceived the idea of making the Chamber of Commerce a civic as well as a business organization. The work of the association was extended so as to include practically all the unofficial public activities, whose object was to make Cleveland a better as well as a busier city. There is an enormous scope for work of this kind in most American cities, because our municipal governments, even when they are honest, have failed hitherto to represent the aspirations of the community towards higher social standards; and, if the different branches of these ameliorating and civilizing local activities can be made the off-shoots of a single stem, and if this single stem can be connected with the roots of the city's economic vitality, the whole movement towards municipal betterment obtains an unprecedented momentum and efficiency.

Such has undoubtedly been the case in Cleveland. There is no city in the country in which the local aspiration towards cleanliness, comeliness, and wholesomeness of municipal life has received abler and more varied expression; and one result of this superior organization of collective local aspirations was the avidity with which the idea of grouping their proposed public buildings around a common center was seized and energetically pushed. Little by little the recalcitrant or indifferent members of the Chamber of Commerce were converted to its support. Then the co-operation was secured of the municipal and county authorities. Finally legislation was obtained officially constituting a Board of Supervision, whose duty it was to prepare an actual plan, determining the proper grouping of the proposed public buildings; and the three

architects who were appointed to this Board, Messrs. Burnham, Carrère and Brunner, were all men whose names carried with them a guarantee of good work. In August 1903, almost six years after the idea had first been broached, the Board made its report, and it was within a few months officially approved both by the municipal government, by the Chamber of Commerce, and by other local organizations. Since then many obstacles have been encountered, and it is not certain yet whether as a consequence of legal difficulties a detail of the plan may not have to be modified. Nevertheless, steady progress has been made towards its realization, and the chances are that a way will be found either through or around the legal obstacles.

In preparing their plan the Board was confronted by certain stubborn and not altogether favorable conditions. Cleveland already possessed a Public Square which appealed to the associations if not to the pride of its citizens. The site of the new Federal Building had been purchased on a corner of this Square and Superior Street. The tendency of all the tentative plans had been to arrange the buildings along a line, which brought them towards the Lake; and the importance of Lake Erie both in the practical and the aesthetic life of Cleveland made it very desirable that an approach to the Lake should be included in the scheme. As it happened, however, the city was divided from the Lake by the railroad tracks; and for a while the presence of these tracks threatened to wreck any arrangement which tended in that direction. It was not practicable to confine the tracks within a tunnel, and, without a tunnel, the popular idea of terminating the mall by means of an open esplanade and a park and playground was impossible.

This difficulty, which had every appearance of making any plan tending towards the Lake impossible, was skillfully converted by the commission into what seems to the writer an actual advantage. The present Union Station of Cleveland is situated only a few blocks beyond the proposed mall; and the build-

ing now used for this purpose is ugly, squalid, inconvenient and utterly out of date. Consequently the commission proposed to include the Union Station in their scheme and to have the mall terminated on the Lake end by a monumental passenger terminal. In arranging for such a terminal, Cleveland would be only following the example of Washington and of the Pennsylvania R. R. Co. in New York. The reasons with which the commission defended this solution of the problem are worth quoting: "In days of old the highways led to the cities and terminated in beautiful and imposing gateways. With our modern civilization the railroad has practically replaced the highway, and the railroad station in its function at least has practically replaced the city gate. If this railway station can be made really imposing—a dignified and worthy monument, a beautiful vestibule to the city—the first impression of a visitor to Cleveland, who would enter through a magnificent portal and immediately gain the most attractive part of the city would necessarily be a very favorable one."

If the plans of the commission are fully carried out, Cleveland will have the most dignified and handsomest public entrance of any city in the United States. The railroad companies have accepted the plans of the commission and as soon as certain legal difficulties are overcome they are ready to build a monumental terminal from the plans of D. H. Burnham & Co. A visitor entering the city will leave the station by means of a spacious mall, enclosed by handsome buildings representing every phase of Cleveland's public life. The County Court-house which flanks the beginning of the mall at the railroad end thereof has already been built and will be occupied within a few months. The City Hall, which balances the County Court-house in the general scheme, is now being erected; but as the excavations have only just begun, it will be some years before this building will be in a position to make its contribution to the total effect. Before it is completed there is a fair chance that the construc-

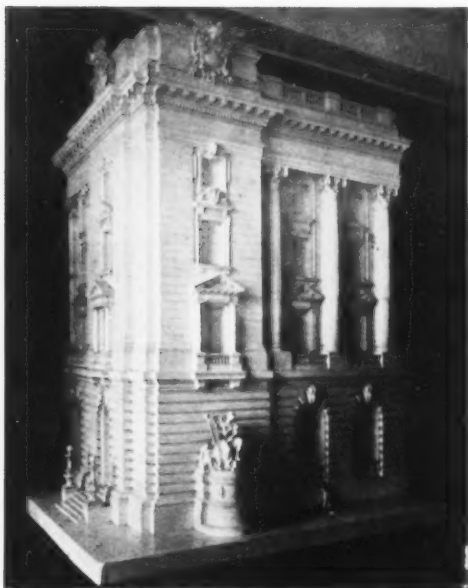
tion of the Union Station will be started. Part of the land necessary for the mall itself has already been purchased, and the remainder will be acquired as soon as a favorable opportunity is presented. The Federal Building at the upper end of the mall is already completed, and its companion building, the Public Library, is the only edifice necessary to the general scheme, for the erection of which arrangements are already under way.

The plans for Mr. Brunner's Federal Building had been accepted before any decision had been reached in respect to the group plan; and after that plan was adopted, certain changes in the architect's designs had to be made. The site bought by the Government included a whole block about 216 feet square. This block faced the Public Square on one side and Superior Street on another. Before the group plan was adopted, the front of this building, which now faces the mall, bordered an insignificant street; and the original plans of the architect contemplated an open court on one side. The group plan necessitated, however, a building which would be conspicuous on all four sides, and, consequently, the architect was obliged to shift his court to the interior of his building. The fronts on Superior Street and on the proposed mall became the sides of the building on which a monumental effect was most important—a fact which explains the flatter treatment on the front facing the present Public Square.

In designing and planning the Federal Building, Mr. Brunner was confronted by a number of difficult conditions and conflicting requirements. In the first place, there was a fundamental conflict between the two different functions for which the building itself was to be used. Under its roof all the officials required by the work of the Federal Government in Cleveland were to find a residence. Primarily, it was to contain a post-office, but of scarcely less importance was the fact that it was also a court-house. But in addition to being a post-office and a court-house, it was an office building. Every department of



DETAIL OF MAIN FAÇADE—U. S. POST OFFICE,
CUSTOM HOUSE AND COURT HOUSE.
Cleveland, Ohio. Arnold W. Brunner, Architect.



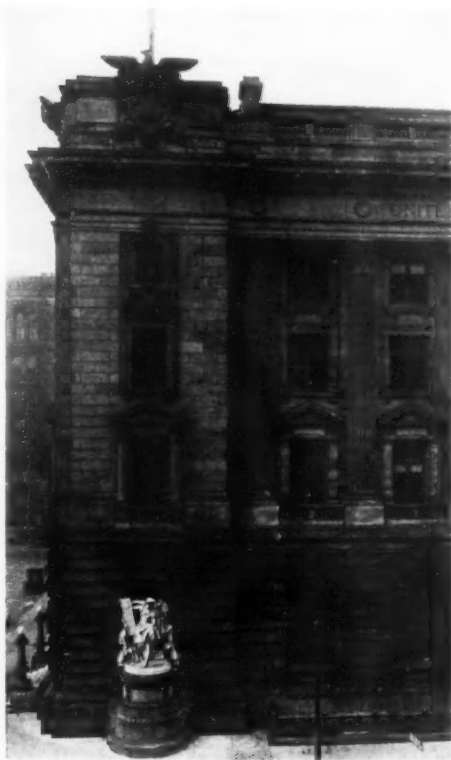
Portion of Scale Model—U. S. Post Office,
Custom House and Court House.
Cleveland, Ohio. Arnold W. Brunner, Architect.

the Government, except the Interior Department, has business to transact in Cleveland. Accommodations had to be made for a custom house for the Internal Revenue collectors; for Pension Clerks, the Immigration Department, Civil Service examining rooms, the War Department, the Hydrographic office, the Inspectors of Steamboats, the Geological Survey and so on to the end of the list. Some of these departments required large offices and some of them small offices; but they all wanted primarily the convenience of an office building.

The prevailing sense of architectural propriety demands that a court-house shall be a monumental building, in which space is lavished and money spent for the purpose of impressing the public with the majesty of the law. But there is no similar need for imposing upon the public a sense of the majesty of the business of collecting customs, conducting civil service examinations or distributing pensions. A building which was a good court-house would necessarily be in some respects a bad custom

house, and the same statement could be turned upside down without diminishing its truth. It is to be hoped that Congress will eventually understand the desirability of separating the Federal Court-houses from the buildings in which the executive departments find their habitations, for until it does so the Federal buildings in the large cities of the country will not be thoroughly well adapted either to one purpose or the other.

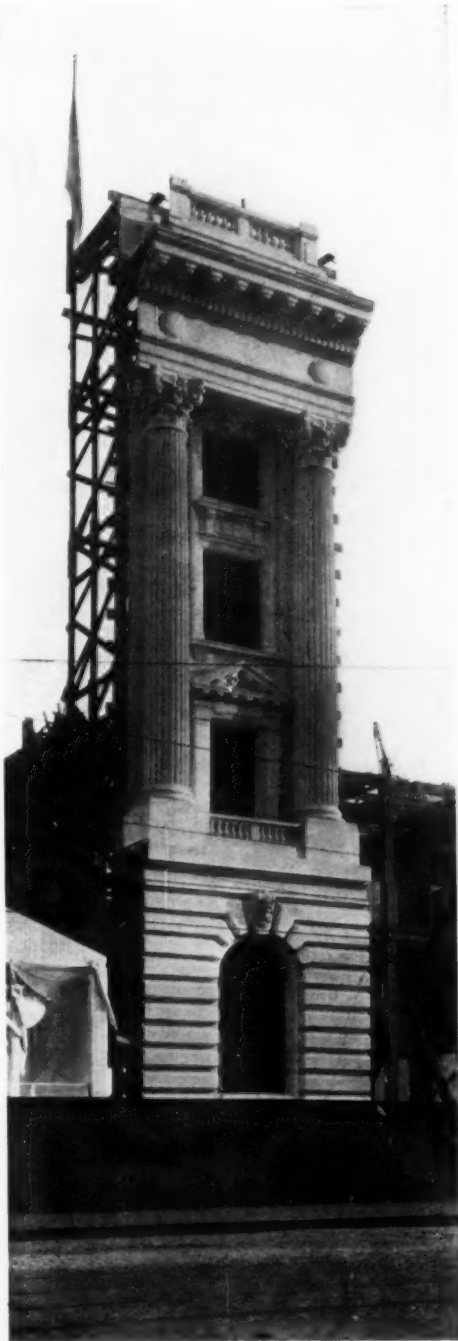
The conflict between the divergent requirements of an office building and a court-house comes out in the present instance in two different respects. Mr. Brunner was designing a monumental structure, but he was obliged to abandon any idea of an entrance or staircase adapted to the character of the building. Access to the court rooms was obtained



Corner Superior Street and Public Square—U. S.
Post Office, Custom House and Court House.
Cleveland, Ohio. Arnold W. Brunner, Architect.

by means of elevators and even Palladio might have been staggered by the difficulty of adapting an elevator to the proprieties of monumental architecture. The best that Mr. Brunner could do was to give an unusually dignified design to the elevator grilles; and even this device had the disadvantage of making the opening and closing of the heavy doors fatiguing to the operator of the elevator. On the other hand, the monumental scale and character of the design in general involved certain drawbacks to the use of the building for office purposes. The scale of a monumental design necessarily involves a thickness of wall and a depth of the window openings which interferes with the best possible lighting of the rooms; and such has been the consequence in the present instance. Mr. Brunner has done his best to minimize the inconvenience of ill-lighted offices by keeping his design as flat as was compatible with a generally monumental effect; but it is none the less true that the offices—even those on the corners with windows on two sides—are lighted in a manner which will cost the Government an altogether unnecessary amount for artificial illumination.

In another respect Mr. Brunner was confronted, if not with conflicting, at least with very trying conditions. One practical necessity of a post-office is some convenient place for the mail wagons to be loaded and unloaded. No city wants its streets encumbered with these wagons; and the consequence is that some provision has to be made on the site of a post-office for a mail wagon court. When a plot is purchased for a post-office, care should be exercised to buy enough land to include such a court. In the case of the Cleveland building no such care was exercised. Every square foot of the site had to be covered by the building in order to obtain room enough inside for the multitude of offices which were needed; and the architect was presented with the problem of providing a wagon court on a site which had to be completely covered by the building itself. The expedient which he adopted was that of an in-



Full Size Model (Executed in Staff)—U. S. Post Office, Custom House and Court House. Cleveland, Ohio. Arnold W. Brunner, Architect.

terior court in the basement to which access was obtained from the street by means of sloping runways. The court thus obtained is abundantly large for its purpose, and it is so planned that the incoming mail is received on one side and is carried by elevators to the work room above. The outgoing mail is discharged by means of chutes at the other side of the mailing court, and is disposed of without interference from the other wagons. It was by no means an ideal solution, but under the circumstances the ingenuity of architectural engineers may be challenged to devise a better.

The division mentioned above between the outgoing and incoming mail also dominates the arrangement of the ground floor. This floor is, of course, devoted almost exclusively to the work of the post-office, and it is divided by an invisible line through the middle. On one side of the line the incoming mail matter, consisting of letters, newspapers and parcels, is received, sorted and delivered to the public. On the other side the outgoing mail is collected from the boxes, sorted, stamped and sent to its destination. But these arrangements concern, of course, the work room for the clerks. Provision had to be made also for convenient access by the public to the counters, for the registry and money order departments, and for entrance to the elevators. Mr. Brunner has devised excellent means for meeting these various requirements. The whole Superior Street frontage is occupied by a public corridor, which can be entered not only from Superior Street itself, but from the Public Square on one side and from Wood Street on the other. Thus access is obtained from three directions; and the counters provided for the stamp clerks, the mailing boxes and the like, occupy the central portion of this corridor. The elevators, giving access to the floors above are situated off the main corridor at either end, and they can be conveniently approached without interfering with the crowd whose business concerns the post-office alone. Still more private are the offices of the Registry and the Money

Order Departments. They are provided with a separate room on the Wood Street side, cut off from the public corridor; and in this room a man can count his money and transact his business in semi-privacy, just as he could in a properly planned bank. The individual offices of the Postmaster, the Assistant Postmaster and the Cashier are situated on the floor above, and connected with the main floor by private elevators and stairways.

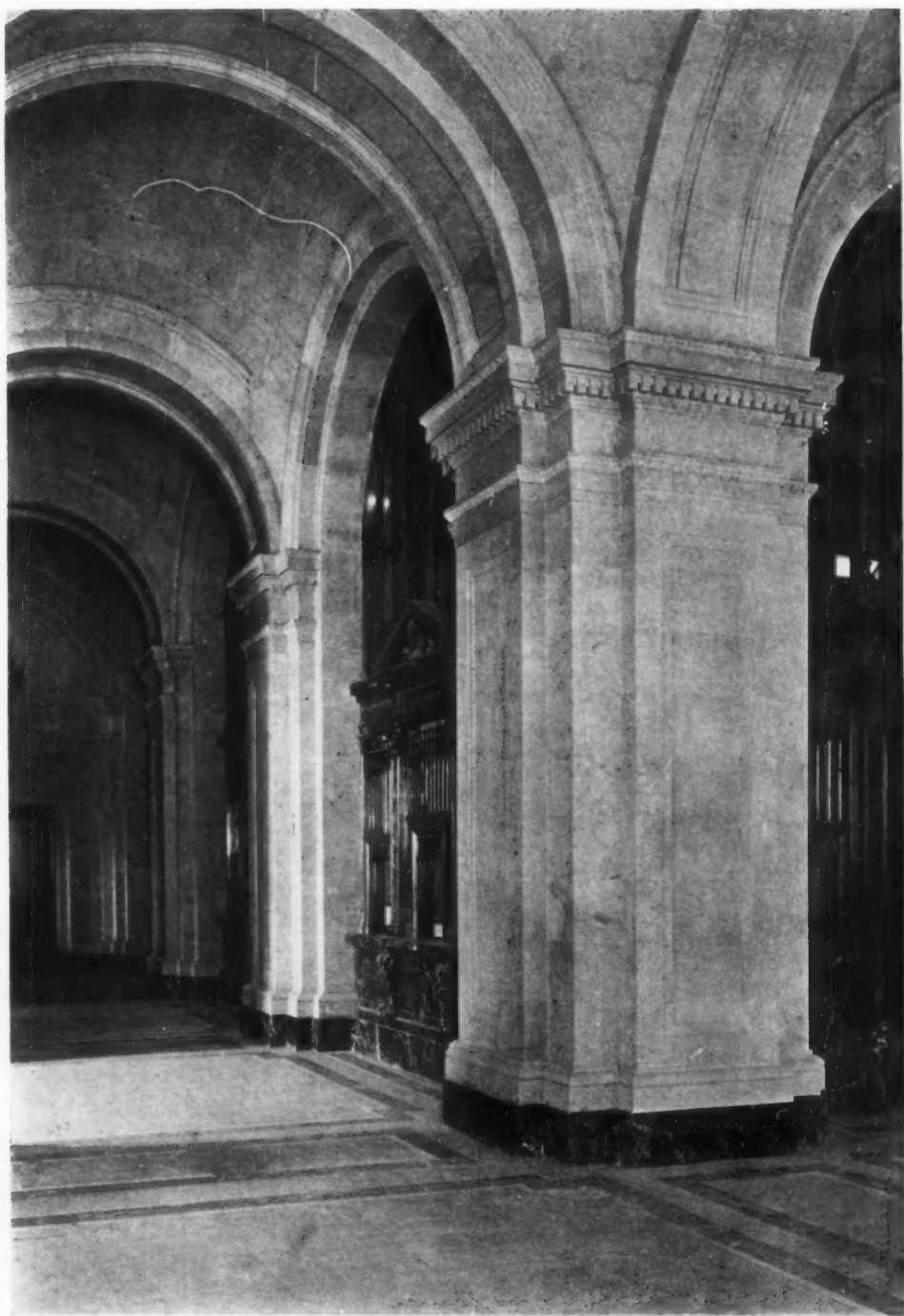
The Government is a conscientious employer and takes good care of its employees. In the basement abundant space is provided for lounging rooms, both for the clerks and the carriers. These are well-lighted, well-ventilated and comfortable apartments, to which are attached well-equipped toilet-rooms. On the other hand, the Post-office has also found that it has to keep a careful watch on its mail clerks, and that means must be provided for what is essentially a system of espionage. Mr. Brunner has tried to keep these inspector's galleries as inconspicuous as possible. A visitor to the large work room would not suspect their existence, and would notice only something which looked like a series of ventilators in the wall; but these apparent ventilators are really louvres through which inspectors or secret service men can command a view of every part of the Post-office, including even the lounging and toilet rooms. The inspectors obtain access to these galleries from a room on the top floor, so that he may come and go without any of the employees suspecting his presence. The fear that any wrongdoing may be instantly detected by an inspector obviously tends to diminish the temptation on the part of the employees to tamper with the mails.

The next most important rooms to those devoted to the Post-office are, of course, the two court rooms, provided for the District and Circuit Courts. The third floor is given over entirely to this service. Besides the two large rooms in which court is held, the judges have, of course, their own private apartments, together with the court library, consultation rooms, and accommodations for the



PORTION OF MAIN CORRIDOR LOOKING TOWARD ELEVATORS.
THE U. S. POST OFFICE, CUSTOM HOUSE AND COURT HOUSE.
Cleveland, Ohio.

Arnold W. Brunner, Architect.



PORTION OF MAIN CORRIDOR, SHOWING POST OFFICE SCREENS.
THE U. S. POST OFFICE, CUSTOM HOUSE AND COURT HOUSE.
Cleveland, Ohio.

Arnold W. Brunner, Architect.

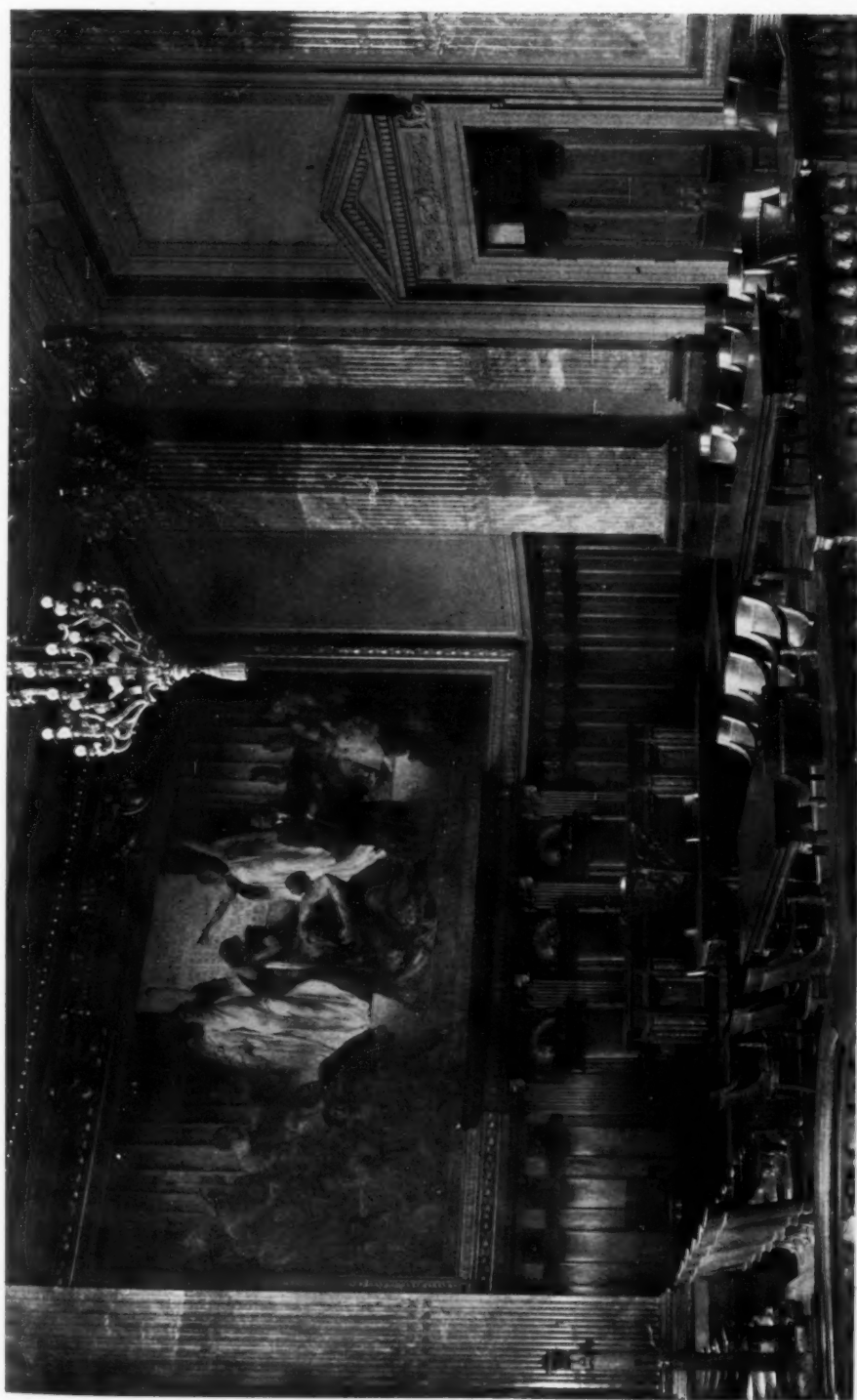


CORNER OF MAIN CORRIDOR—ENTRANCE VESTIBULE.
U. S. POST OFFICE, CUSTOM HOUSE AND COURT HOUSE.
Cleveland, Ohio.

Arnold W. Brunner, Architect.



COURT LIBRARY—U. S. POST OFFICE,
CUSTOM HOUSE AND COURT HOUSE.
(Mural Painting by Frederic Crowinshield.)
Cleveland, Ohio. Arnold W. Brunner, Architect.



CIRCUIT COURT—U. S. POST OFFICE.
CUSTOM HOUSE AND COURT HOUSE.
(Mural Painting by Edwin H. Blasfield.)
Cleveland, Ohio. Arnold W. Brunner, Architect.



FIREPLACE—DISTRICT ATTORNEY'S OFFICE.
U. S. POST OFFICE, CUSTOM HOUSE AND COURT HOUSE.
(Mural Painting by R. F. Zogbaum.)
Cleveland, Ohio. Arnold W. Brunner, Architect.



CORNER OF CIRCUIT COURT—U. S. POST OFFICE,
CUSTOM HOUSE AND COURT HOUSE.
Cleveland, Ohio. Arnold W. Brunner, Architect.



FIREPLACE IN PRIVATE OFFICE OF CLERK OF CIRCUIT COURT.
THE U. S. POST OFFICE, CUSTOM HOUSE AND COURT HOUSE.
Cleveland, Ohio.

Arnold W. Brunner, Architect.



FIREPLACE IN APPRAISER'S PRIVATE OFFICE.
U. S. POST OFFICE, CUSTOM HOUSE AND COURT HOUSE.
(Mural Painting by Will H. Low.)
Cleveland, Ohio. Arnold W. Brunner, Architect.

clerks. In addition, there is a Grand Jury room, offices for the Marshal and his assistants, and places in which witnesses and prisoners can be temporarily detained. In planning the court room Mr. Brunner has sought not merely to give them a certain grave and handsome dignity of effect, but also to make them thoroughly convenient. They are lighted by large windows on the north side, so that, while an abundance of illumination is provided, the sun never actually enters them. The spectators have these windows on one side, the jury have them at their back. The intention was to dispense entirely with the necessity of window shades. Unfortunately, however, it has been found that the lawyers, when they address the jury are obliged to look directly into this north light, while at the same time they find difficulty in distinguishing the faces of the men they are addressing—the consequence being that shades or curtains may after all have to be provided for the windows. By an ingenious arrangement the judge leaves the platform on which the bench is situated and reaches his private apartment through a private door without being obliged to descend any steps in public, for which he will most assuredly be grateful to the architect. Entrance to the court room is through two doors, one for counsel and the other for the public. When the jury leaves the jury box, it passes directly to the jury room under the eyes of the judge.

The rest of the building is devoted to offices of many different sizes and used for a variety of purposes. The great majority of these offices are finished as plainly as they would be in an ordinary office building; but in certain cases Mr. Brunner felt justified in designing somewhat handsomer and more expensive rooms. The corridors, for instance, are ordinarily most simply treated and are distinguished from those in office buildings only by the use of better looking and more permanent materials, but the end of the hall leading to the court room is stamped by four columns of Cippolino marble, and the vestibule is finished in white Pentelikon marble.

Then the offices of the heads of the more important departments, such as the Collector of the Port, the Postmaster, the District Attorney, and the like have been decorated with unusual elaboration. They are all of them panelled rooms, and almost all of them contain mural paintings, specially painted, of course, for the places they occupy. Thus in the office of the Collector of the Port there is a symbolic representation by Mr. Kenyon Cox of Commerce paying tribute to the Port of Cleveland. In the Appraiser's office Mr. Will H. Low has designed a mural decoration, entitled "The City of Cleveland, supported by Federal Power, welcomes the Arts bearing the plan for the new Civic Center." In the District Attorney's office "The Battle of Lake Erie" has been portrayed by Mr. Rufus F. Zogbaum, while the Postmaster's room will eventually contain a decoration by Mr. F. D. Millet on a frieze some five feet in height, above the Circassian walnut panelling. The decoration of the court library and the mural paintings at the end thereof were executed by Mr. Frederic Crowinshield. It should be added that in painting all the interior plaster work of the building the architect was assisted by Mr. F. D. Millet, and a visitor will instantly recognize with what uniform good taste and subordination to the essential values of the design and the neighboring materials this work has been done. He will also recognize that the electric fixtures, the rugs and the furniture of all these specially designed rooms contribute to the general effect and have evidently and most fortunately been confided to the architect of the building.

The city of Cleveland and the Government of the United States are to be congratulated upon their acquisition of so excellent a building as the new Cleveland Post-office and Court-house. It is worthy of the place it will occupy on what will probably be the handsomest public square in the country, and it is worthy of the nation, whose majesty it will represent in a great and growing city. Mr. Brunner has under considerable difficulties contrived to make a

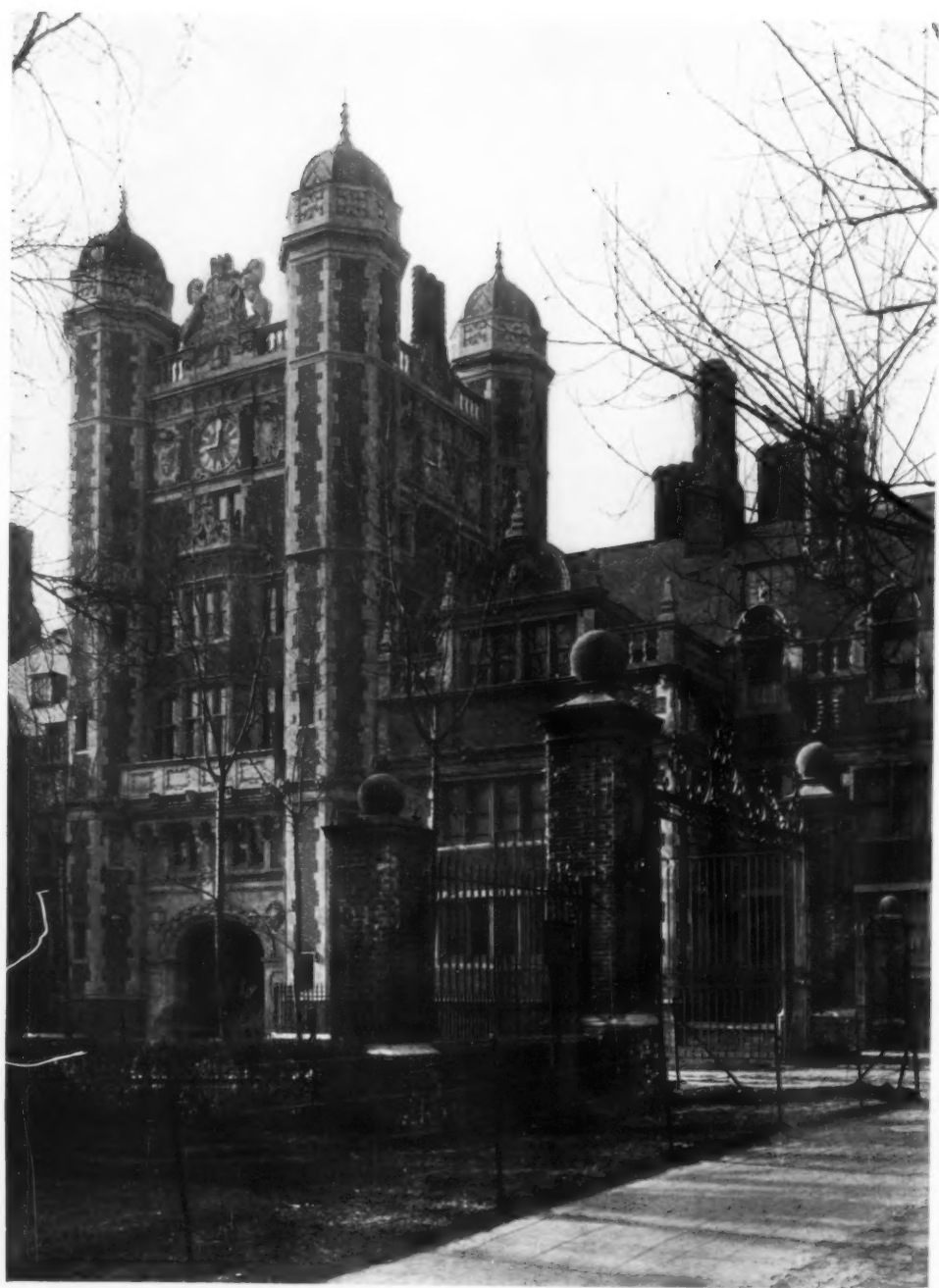
building which is composed, more than anything else of a collection of offices, look monumental, and he has done so with only very small sacrifices of convenience and propriety. The fact that it possesses a really monumental character is sufficiently indicated by the impression it makes on every attentive observer of being a moderate sized building, whereas in truth it is a very large building. Its ability to produce such an effect proves the design in its masses and details is admirably scaled, and its success in this respect is an achievement for its architect, because he could not call to his assistance certain devices most useful to the designers of monumental edifices. He could not elevate his building above the street level or arrange for any sufficient approach. His entrances were necessarily insignificant and only incidental to the general design. He was obliged, that is, to situate a monument on the building line of a street; and he was only fortunate in the fact that his structure will eventually face public squares on two sides and a very broad thoroughfare on another side.

Throughout the building the architect has been very discreet in the use of ornamentation. He has obtained the effect of handsome substantiality, appropriate to Government edifices, chiefly by the skillful treatment of beautiful and costly materials. The main corridor on the ground floor is in this respect peculiarly successful. The beautiful lines of the domed ceiling, the walls, finished in such a rich, yet soft and sober material, are so effective that the architect has been able to dispense almost entirely with ornamentation. This corridor is one of the great successes of the building. It will always look well. It will always wear well. Crowds of hurrying people can use it without feeling that it makes too gorgeous a background for the commonplace business of buying a two-cent stamp; while at the same time there is stamped upon a sensitive visitor the impression of enrichment without ostentation, and dignity without mere dull solemnity.

It was an impression of this kind which Mr. Brunner has sought to make

throughout the whole of the building, and for the most part he has succeeded. He has succeeded in general with his two court rooms, which are as well adapted for their purpose of giving the law an appropriate habitation as any the writer has seen in this country. These apartments have kept a warm and pleasant character without any loss of breadth and dignity; and in the District Court room Mr. Blashfield's fine and well-placed decoration adds essentially to the general impression of distinction and elevation. Mr. Brunner would, perhaps, have been even more successful with these rooms in case he had reduced and simplified the ornamentation of the cornice and ceiling, but even there the excess of detail is not burdensome.

In the case of the mural decorations in the private offices of the Collector of the Port and the other more important officials who inhabit the building, there is involved a doubtful question of propriety: Are they worth while? Are local district attorneys and collectors of revenue sufficiently important members of the American official hierarchy to justify the expense of painting their walls? Does the prosaic business they transact require such scenery as an appropriate setting? Are not the interest and propriety of the rooms Mr. Brunner has designed actually diminished by some of these paintings? The writer himself is inclined to believe that the money spent for this purpose should either have been saved to the Government or spent in some other way. Government business is still business, and all business should be economically conducted. The private office even of a public official should be kept unpretentious and business-like to the last degree; and, if any decoration is permitted, it should be inconspicuous and incidental to the whole effect of the room. Manifestly, however, there are two sides to this question, and, as it is one of some importance in respect to the future of Government architecture in this country, the *Architectural Record* would be glad to consider and possibly to publish expressions of opinion on this point.



PROVOST'S TOWER—UNIVERSITY OF PENNSYLVANIA.
Philadelphia, Pa. Cope & Stewardson, Architects.



SOME RECENT PHILADELPHIA ARCHITECTURE

Group A—City Buildings

By PROF. THOMAS NOLAN

FIVE YEARS ago some examples of the suburban architecture of Philadelphia and vicinity were published in the *Architectural Record*, and briefly described by the present writer; and the opinion was then expressed that, basing a judgment upon the buildings of recent years up to that time, wholly new types had been developed in one class of structures, namely the commercial buildings in the cities. It is in domestic architecture, however, and particularly in suburban and rural architecture, that one meets with the most characteristic and original phases of American work. An examination of what has been done during the past few years seems to confirm this opinion. We are speaking, of course, of the best representative work.

The class of structures referred to in the commercial group includes especially the high office building, the "skyscraper"; and that in domestic architecture includes all the better class of dwellings, large or small, but more especially the detached dwellings of the towns, the suburbs of cities and the country itself.

If there is such a thing as an "American" style or kind of building, it is to be found in these two general types developed in the United States during recent years. The domestic architecture pre-

sents, perhaps, a greater number of phases than the commercial work. But, although one meets with these characteristically American solutions of the architectural problems presented by these two widely separated kinds of buildings in all parts of the country, the results show fewer differentiations from an average typical unit solution of design than would be supposed.

In general, it cannot be said that Philadelphia architecture of the past half dozen years, or of the last decade, differs much from that of other cities. At the same time, it may be said that, during the past thirty years, certain influences, such as the influence of the good examples of Colonial work in this city and close at hand, have led to somewhat quieter and more reserved methods of architectural treatment than those employed by the architects of many other localities; and this, too, without any loss of interest or individuality. If in any other particular, the good work is notably worthy of commendation, when compared with that of other great centers, it is in a patient and persistent attention to the smaller details of such problems.

And then, also, it must not be forgotten that while all modern American building had to start amid the discourag-

ing surroundings, the architectural aberrations of the third quarter of the last century, with only the occasional bits of good old work to help as an inspiration, the architecture of Philadelphia started with the most vicious of all the associations of this kind in this period.

Another influence making always for the greatest good should not be overlooked; that is, the school of architecture of the University of Pennsylvania. For the past twenty-one years, and even farther back than that, before the actual founding of a separate department, the influence of the men who have gone forth from this school has been felt; and its very presence in the city, and its constant insistence upon a practical application of the highest ideals, has been an inspiration and encouragement to all who are striving to bring about a more universal appreciation of architecture as a fine art. And this, of course, may be said of other schools in other cities. Still another very strong influence has been exerted by the American Institute of Architects, through its chapter. But the Institute's work is too national and universal to be localized in any one center.

The speculative work of the "building operations," the acres, the square miles of it, like many other poor things, always we have with us. In one sense it needs no mention in any discussion of architecture; but as it is the intention to return to it later on in this paper, in connection with an interesting effort now being made to offer to people of small means an acceptable substitute for the endless rows of characterless houses, the homes of the great majority of the inhabitants of the city, this passing reference may be allowed.

Much of the recent architecture in Philadelphia, in the city itself, in the suburbs and in the surrounding beautiful country, is good. Some, of course, is indifferent. Classifications of this kind are difficult, often invidious, and seem to call for pretty exact definitions of "good," "bad" and "indifferent" architecture. He who attempts this pigeon-holing of the various efforts must expect to be often accused of begging the question. Possibly a large majority would

pick out and agree upon the "very good" and the "very bad." But what about all that work that comes in between, passing through all the gradations in any classification, and about which there are positive differences of opinion, not only on the part of the "general public," whose ideas on things architectural are not usually taken very seriously by the profession, but also on the part of trained observers?

After looking at many of these new buildings, getting and trying to retain many and varied impressions, breathing the different "atmospheres," observing the settings, the approaches, the backgrounds; after talking with those whose solutions of the many problems have been materialized in brick and stone, in form and color and texture; and with a hundred or so of more or less interesting and charming reproductions by the camera before one, what can he say in a few pages about this recent architecture in and around Philadelphia? Shall he say nice things about them all, or shall he commend this and condemn that? Shall he "just hint a fault, and hesitate dislike?" Or shall he say, "There are the pictures; they speak for themselves," and endeavor to translate some of the things they say?

In considering these photographic reproductions of the examples selected for this article, or in considering any work of any architect, the wisdom of attempting to determine exactly what "sum" in architectural design each architect tried to "do" in each building, and of attempting to decide upon the degree of success or failure in each case, without at the same time knowing all the details of the limitations put upon him, the conditions imposed and the client's personal equation, is very doubtful. Many who have tried to write a just criticism of an architectural design without first hearing from the architect all the conditions of the problems, have found this out. The designs of buildings have been often severely criticised and condemned as architectural compositions, when the only data possessed by the critic have been the views or photographs of exteriors, while the plans, the insistent requirements of

interior arrangements, the limitations imposed by surroundings and often the peremptory demands, reasonable or unreasonable, of the owners, have been unknown or unconsidered. Buildings may

ing to the intensely practical, as well as to the fine arts.

The examples at hand, representing recent Philadelphia architecture, may be conveniently classified into two groups.



PROVOST'S TOWER—UNIVERSITY OF PENNSYLVANIA.

Philadelphia, Pa.

Cope & Stewardson, Architects.

be, and, in fact very often are, open to more or less criticism, considered as architectural designs or compositions; but they are very often, at the same time, exceedingly clever compromises and happy solutions of problems belong-

one including the more distinctively city buildings, such as the latest additions to the University of Pennsylvania dormitories, the hospitals, college fraternity houses, smaller libraries, city clubs and residences, commercial buildings,

churches and the smaller city houses; and the other group including the suburban dwellings and the more pretentious country villas. It will be convenient to consider the city work first, and one could not begin with anything more interesting and charming than the Provosts' Tower of the University of Pennsylvania dormitories, designed by Cope & Stewardson, and shown in the frontispiece (page 214), and in the view from the "Big Quad." When the tower is compared with the "Memorial Tower" erected in 1901 on the north side of "The Triangle," the success of the architects in combining great variety and versatility with unity of design is generally admitted.

This dormitory group has been under construction since 1895, when it was begun at the west end near 38th Street and Woodland Avenue. The Provosts' Tower just completed forms the entrance to "Big Quad" from 36th Street. This entrance is reached through the Class of '73 Gateway, seen in the photograph. The names of the twelve provosts, from William Smith, 1755, to Charles Custis Harrison, whose term has just expired, are recorded on the shields in stone bosses in the main cornice and on shields on either side of second-story windows on the Quad side. The brickwork of all the dormitory buildings is laid in Flemish bond, with natural burned headers, and all stone quoins, string courses, window jambs, etc., are of Indiana limestone. Over the keystone on the exterior face of the main arch are the arms of William Penn; over the keystone of the inner arch, the arms of the University; and at the skyline on both fronts are the arms of the State of Pennsylvania. Each of the four façades of the tower has a clock in the upper story, the faces of which are of green bronze while the hands and numerals are gilded. Flanking the clock faces are panels symbolizing Science, Art, etc., and there are some smaller carvings with the University arms and monograms. The roofs of the corner tourelles are of copper, which, like similar roofs on the Memorial Tower, is turning green. The exterior archway has great oak gates, which are

closed at a fixed hour in the evening, there being a small portal for the use of belated visitors. The internal arrangement of the Provosts' Tower is practically similar to that of the other divisions of the dormitories, and with the exception of the ground floor, which accommodates the porter, is used by the students as living quarters.

The Veterinary Building of the University, designed by the same architects, is located at 39th Street and Woodland Avenue, the chief entrance being on 39th Street through an archway in that front. It has been under construction for several years, two sides of the hollow square which constitutes the general plan being now finished and occupied. The third side is well on toward completion. The two finished street façades show in the photograph, the view looking to the northeast. The materials used are brick and Indiana limestone, combined and laid as in the dormitories. This group of Veterinary buildings contains both hospital and school. In general, the hospital work is conducted on the south side of the square, the school being on the north, the administration on the west, near the archway of the entrance, and the lecture rooms on the east, directly opposite this entrance. As is the case in all the recent University buildings, the construction is fireproof throughout, the walls being of brick, the floors of reinforced-concrete and the roof of concrete covered with green slate. The interior court, when completed, will include outdoor paddocks and a short running-track for testing horses' gaits.

A few hundred feet east of the Provosts' Tower, on Spruce Street, is the new building of the University of Pennsylvania hospital, a very straightforward, dignified and successful building, designed by Brockie & Hastings, the general style and materials employed being along the lines of the other newer structures, it being thought best by the University authorities to adhere to this general type. The part now erected and shown in the photograph is only one portion of a large group. A similar structure is to be erected in front of the next wing to the east, and these two will

be connected in the basement and in the first story, an open space being left between them above this height, as far back as the present connecting corridors between the two wings. All this is only part of a scheme for rebuilding the entire hospital front. It comprises a central administration building, flanked

patients. The second and third stories are occupied by the large medical amphitheatre or lecture hall, seating one hundred and fifty students, or two classes at one time, while beneath the steep slope of the seats of the large room a small lecture room, seating seventy-five students, or one class, has been constructed.



NEW HOSPITAL BUILDING—UNIVERSITY OF PENNSYLVANIA.

Philadelphia, Pa.

Brockie & Hastings, Architects.

on each side by a group similar to that described above. In addition to this, the entire group will be flanked on the east end by the Nurses' Home and on the west by another building of similar character, architecturally. The building shown contains, in the basement and first story, the dispensaries for the out-

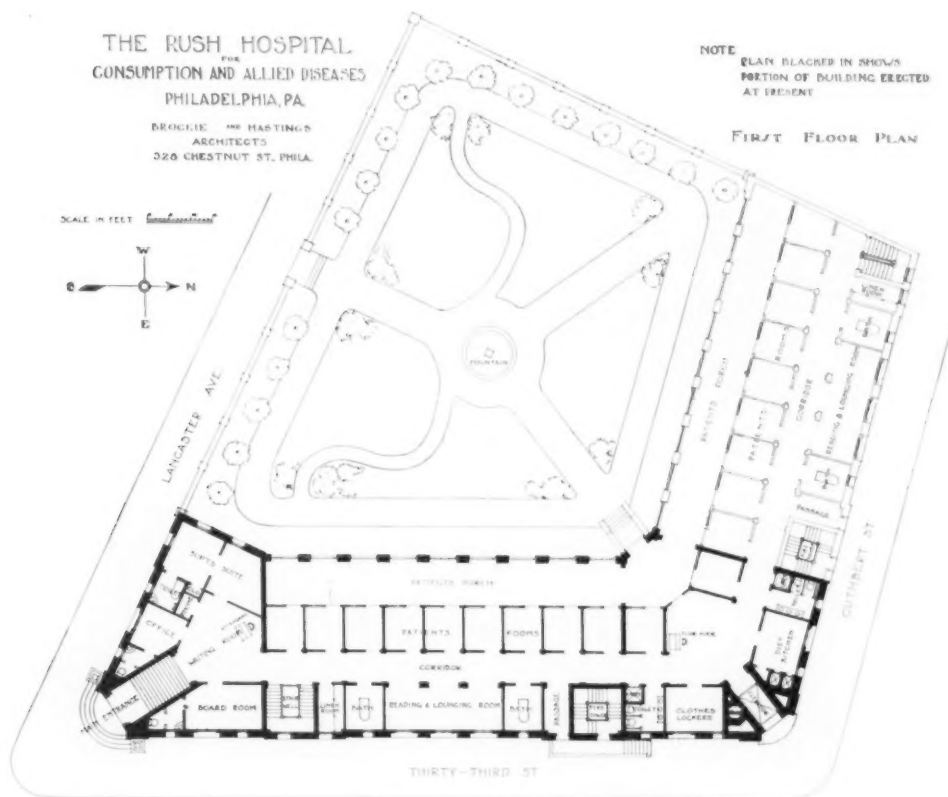
The fourth story contains two large laboratories, one for the fourth-year men and the other for class work with the lower classes; and there is also a laboratory for the hospital staff for hospital work. The sub-basement contains the mechanical plants and one for the filtration of the air supplied to the two am-

phitheatres or lecture halls, together with other appliances.

In another part of West Philadelphia, at Lancaster Avenue and 33d Street, is another hospital, the Rush Hospital for Consumption and Allied Diseases. This building also was designed by Brockie & Hastings, and is shown in elevation and plan. The orientation has been carefully considered, the porch exposures being to

and servants' dormitories; the basement, the out-patients' department, laboratories, the X-ray department, mortuary and laundry and the disinfecting apparatus; while the sub-basement, which is only under the central part, between the two wings, contains the heating and mechanical plants.

The new Philadelphia Hospital for Contagious Diseases, located on the



FIRST FLOOR PLAN—THE RUSH HOSPITAL.

Philadelphia, Pa.

Brockie & Hastings, Architects.

the south and west. The plan was determined by the treatment required for the patients, who live and sleep on these outdoor porches and use their rooms for dressing only, except in extreme cases, when the rooms are sometimes used for living and sleeping purposes. The first story plan shown is typical also of the second and third stories. The fourth story contains the nurses' rooms, kitchens

north side of the City, at Second and Luzerne streets, designed by Philip H. Johnson and Wilson, Harris & Richards, associated, and opened June 1, 1909, is shown by a general view of the administration, observation and exit buildings.

Three more fraternity houses for Greek-letter societies, which have chapters in the University of Pennsylvania,



THE RUSH HOSPITAL.

Lancaster Avenue and 33d Street, Philadelphia, Pa.

Brockie & Hastings, Architects.

have just been completed on Locust and Walnut streets, facing the campus. The first one shown is St. Anthony Hall, the handsome and dignified home of the Delta Chapter of the Fraternity of Delta Psi, and was designed by Cope & Stew-

ardson. The façade shown, the south elevation, is a perfectly symmetrical composition, indicating in general the same treatment, texture and coloring, and the same material seen in the other new University buildings. The first floor



THE NEW PHILADELPHIA HOSPITAL.

Philadelphia, Pa.

P. H. Johnson & Wilson, Harris & Richards, Architects.

and part of the second are given up to the dining-room, library, reading-room, etc. The rest of the building contains bedrooms for members of the society attending the University.

The main entrance to the building is reached through the gateway at the right of the fine wrought-iron fencing showing in the photograph, and is itself marked by an iron and glass marquee. This arrangement of plan in locating the main entrance doors on the side was

adopted to give the entire Locust Street frontage on the south to the living-room or library. The rear part of the first story is taken up by the dining-room, which extends the full width and opens out upon a terrace overlooking a small garden.

The treatment of the Sigma Chapter House of the Zeta Psi Fraternity presented two distinct problems to the architects, Thomas, Churchman & Molitor, one of plan and one of elevation. The



ST. ANTHONY HALL.

3637 Locust Street, Philadelphia, Pa.

Cope & Stewardson, Architects.



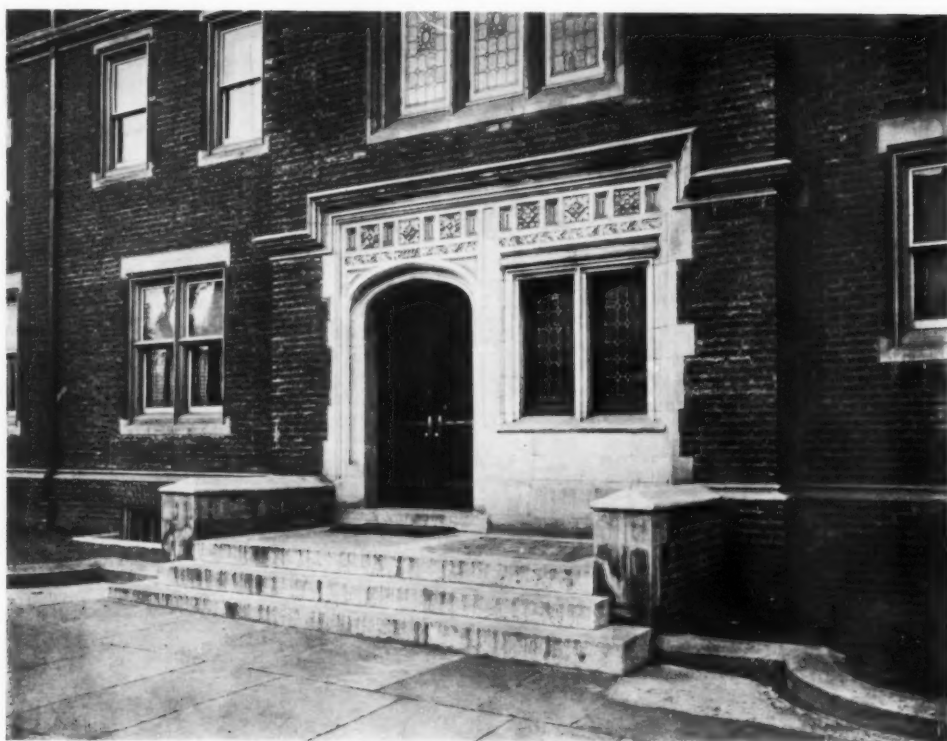
THE SIGMA CHAPTER HOUSE OF THE ZETA PSI FRATERNITY.

Woodland Avenue, Philadelphia, Pa.

Thomas, Churchman & Molitor, Architects.

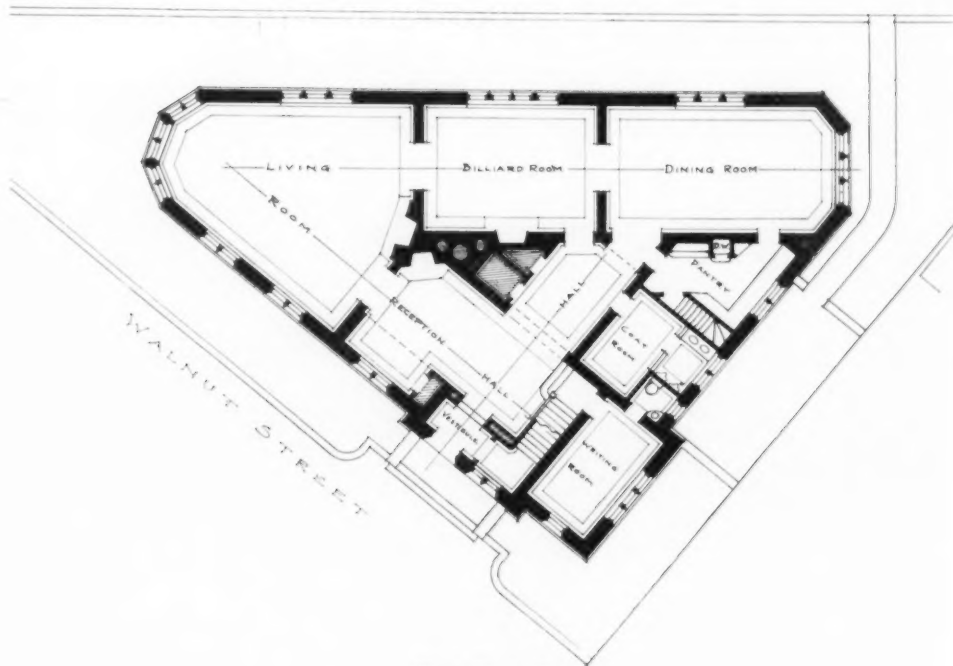
problem of plan was to so dispose of a triangular plot of ground that its irregularity would express itself as little as possible in the internal arrangement. The plan was therefore treated with the rooms developed in the usual manner along the three facades, throwing all its irregularities to the center, where they could be readily and usefully disposed of. By doing this, and by working up the vistas along the three simple axes, it has been possible to develop the proper impression of the unity and spaciousness of the building. The problem of elevation, like that presented in the other new fraternity houses, required a treatment which should lead even the casual observer to feel that this building is a part of the main University group, and

still has a certain distinctiveness. The position of the chapter-room, in the apex of the building in the third floor, has been candidly expressed. In order to properly blend with the recent University buildings, the exterior was naturally given a similar garb, that is, of brick and limestone, relying upon a certain special or unusual treatment of the brickwork, upon the simplicity and massing of the limestone, and upon strong roof lines and coloring to obtain its individuality. The brickwork is laid up with extremely wide joints and entirely of stretchers, set in pairs and singly, to give the effect of a header and stretcher wall. The stretcher bricks thus treated as headers have the wide vertical joints on either side of them raked out in order to give certain



Entrance Detail.

WOODLAND AVENUE



First Floor Plan.

THE ZETA PSI FRATERNITY HOUSE.

Philadelphia, Pa.

Thomas, Churchman & Molitor, Architects.

shadow notes to what might otherwise prove an uninteresting surface. In dealing with the limestone, the effort has been to make this count in masses, and only where notes are needed, as in the second story oriel bay and around the Walnut Street entrance doorway, shown in the photograph of this detail. The chapter-house is situated at the corner of Woodland Avenue and 34th and Walnut streets. The roof is covered with large variegated green and purple slates of random widths and of graduated size and thickness.

The third fraternity house shown is that of the Phi Kappa Sigma Society, and is the work of Architects Bissell & Sinkler. It is located on the northeast corner of 36th and Locust Streets and was designed to express a combination of clubhouse and secret society building,

with the functions of the former predominating. The withdrawal of the front entrance from the building line was a concession to the secret society idea, and was also made necessary by the plan and other requirements. Again, the materials are the Indiana limestone up to the second floor line, with "Oriental" brick laid with double stretchers in Flemish bond in combination with limestone used above. The modified style of the Georgian period was chosen as one harmonizing sufficiently with the English collegiate style of many of the new University buildings, while still retaining a marked individuality of treatment. The first story contains the clubrooms. In the second story is the library, etc., and a large porch or loggia, enclosed with glass and looking across the open space to the south to the University



PHI KAPPA SIGMA FRATERNITY HOUSE.

Philadelphia, Pa.

Bissell & Sinkler, Architects.



PLAYGROUND BUILDING.
Wayne Avenue, near Wayne Junction.

George T. Pearson, Architect.

buildings. The beautiful texture and coloring of the brickwork of this building are well worthy of mention.

An exterior view and plan of a building designed for an interesting and unusual purpose by Mr. George T. Pearson is shown. This is the "Quarry Playground House" in Germantown, on Wayne Avenue, near Seymour Street, at

old "Sleepy Hollow." This building, and the surrounding grounds, the summer-houses and tennis courts, the lawns on the lower level places and on the hill to the rear are all for the children, and they were given to them by Mr. E. W. Clark of Philadelphia and presented to the Playground Association of the city. Here was the old stone quarry, cover-

Play Ground House,
Quarry Playground Germantown,
Geo. T. Pearson, Architect.



Plan of Main Floor.

ing about two acres, hollowed out to a depth of eighty feet and afterwards filled up with rubbish, through which, to the very bottom, were built the necessary concrete foundations.

The walls of the building are of rough red brick with black headers laid in Flemish bond and with scraped, wide, rough joints. The exterior is treated throughout with great simplicity, and an absence of all ornament, depending

to the full height and have enameled steel ceilings.

The better class of recent city residence architecture in Philadelphia is well illustrated by the examples given: the dwellings of Mr. S. P. Wetherill, on South 18th Street, near Rittenhouse Square, by Frank Miles Day & Brother; and of Mr. Alfred E. Burk, at the corner of Broad and Jefferson streets, by Simon & Bassett. These buildings are among the



THE S. P. WETHERILL HOUSE.

Philadelphia, Pa.

Frank Miles Day & Brother, Architects.

solely on the contrast of red walls and white woodwork for effect.

The main hall, 33 by 60 feet, is faced inside with white enameled bricks to a height of 8 feet, and above that to the cove line it is plastered buff soapstone finish with exposed iron roof trusses and with the pine ceiling boards oil-finished, the other woodwork being chestnut, treated with a greenish stain. The end wings or lavatories have all the interior walls lined with white enameled bricks

relatively few in the thickly settled parts of the city that stand free, with all sides exposed and permitting of architectural composition on more than one or two elevations.

The Wetherill house has for its exterior materials Indiana limestone throughout, except in the base, where granite has been used; and its architectural treatment is that of an absolutely straightforward and simple plan, an entire freedom from any peculiarities of construc-



GREENHOUSE—THE A. E. BURK RESIDENCE.

Philadelphia, Pa.

Simon & Bassett, Architects.

tion, and a clear expression of the same in the design of the façades.

Mr. Alfred E. Burk's house, also, is simple in plan and external treatment. In designing the conservatory in the rear, the architects, Simon & Bassett, had to accomplish two things: they had to

form a suitable background for the house, and also to design a building adapted to the purposes for which it was to be used. The central portion is a palm room, the street end a conservatory and the end opposite a garage and man's quarters. The entire structure is



THE A. E. BURK RESIDENCE.

Philadelphia, Pa.

Simon & Bassett, Architects.

built of stone and glass, the stone being similar to that used in the house—the "Oman" Bowling Green limestone, a warm gray in tone. The treatment of this prominent corner shows an intelli-

teenth Street south, and the south facade. This palatial four-story addition has just been completed and contains the ballroom, the library, the billiard room, many sleeping rooms, and, in the base-



UNION LEAGUE ANNEX.

Courtesy of Public Ledger, Phila.

Philadelphia, Pa.

Horace Trumbauer, Architect.

gent and painstaking solution of the problem on the part of the architects.

The photograph of the new Fifteenth Street annex to the building of the Union League Club, designed by Horace Trumbauer, shows the west facade, from Fif-

teenth Street south, and the south facade. This palatial four-story addition has just been completed and contains the ballroom, the library, the billiard room, many sleeping rooms, and, in the base-



ST. MARK'S PROTESTANT EPISCOPAL CHURCH.
Frankford, Pa. Watson & Huckel, Architects.



ST. MARK'S PROTESTANT EPISCOPAL CHURCH—
THE NAVE LOOKING EAST.
Frankford, Pa. Watson & Huckel, Architects.

curved outside flights of steps to the entrance porch, is very noticeable. The second step in supplanting, finally, the entire old Union League building has been taken, and the contract just let for tearing down the middle portion and erecting in its place a five-story continuation of the new part shown, to contain, among other rooms, a huge assembly hall and the great cafés; but sentiment runs high regarding the preservation of the old Broad Street building, and it will probably be many years before it will be torn down to make way for a more modern design of city-club architecture.

The two examples of recent ecclesiastical architecture are taken from widely separated districts of the city; one, St. Mark's Protestant Episcopal Church, designed by Watson & Huckle, being in Frankford, and the other, the Roman Catholic Church of St. Francis de Sales, in West Philadelphia.

St. Marks' parish is of considerable age and size, being one of the largest in the diocese of Pennsylvania. The parish center had long been established, and when the erection of the church building was decided upon the architects found themselves confronted with the following conditions: A narrow piece of ground, of good length, however, confined between two properties, facing the main avenue of a bustling suburb, and running through to a street in the rear on which faced the principal façade of the parish building, erected some twelve years ago by the same architects. The latter building was of necessity a strong factor in the solution of the problem and, while not allowed to determine style, it did fix the selection of materials and influenced the arrangement of the plan. The building is orientated, and the plan consists of a nave of ten bays, each fifteen feet long, the total interior length being one hundred and fifty feet. The aisles are narrow, six bays of the north aisles, however, being doubled in width to form the Morning Chapel. The tower occupies two bays at the east end of the Chapel and serves as the priest's sacristy. The narthex adjoins the parish house and forms the connection between it and

the western entrance to the church. There is also a north porch at the west end of the chapel and a south entrance at the baptistry, which is formed by the two easternmost bays of the south aisle. The materials used for the exterior are Port Deposit granite, trimmed with Indiana limestone. The interior of the church is lined throughout with the latter, and all tracery and ornament are of the same stone. In selecting the materials for the altars, sanctuary, rails, parclose and choir screens, Indiana limestone was finally decided upon. The color effect obtained is very pleasing, and the impression made by the interior as a whole is one of quiet dignity. The glass is very good, the treatment being based on the English work of the twelfth to the fourteenth centuries. The drawing, however, is less archaic. The finest windows are those of the east and west ends of the nave, the subject at the east end being the "Crucifixion," and at the west end the "Tree of Jesse."

The new Church of St. Francis de Sales, designed by Mr. Henry D. Dagit, is situated on the northeast corner of 47th Street and Springfield Avenue, in West Philadelphia, the photograph shown being taken from the southwest. At the present writing the building is still unfinished, and it was not possible to obtain views of the interior. The plan, in general, as indicated by the exterior, consists of an entrance porch flanked by two towers, the nave, transepts and sanctuary. The main feature of the design is the dome resting on four great arches and pendentives at the crossing of the nave and transepts. This dome is sixty-two feet in diameter, starting at a distance of ninety feet from the nave floor and rising to the top of the cross, one hundred and twenty-six feet. Like the smaller domes of the towers it is covered with decorative polychrome tiles and is a very conspicuous object in form and color when viewed from many points in the western part of the city.

The most important commercial building recently completed in Philadelphia is the great Wanamaker department store, designed by D. H. Burnham & Co. This huge granite building covers an en-



THE CHURCH OF ST. FRANCIS DE SALES,
West Philadelphia, Pa.
Henry D. Paelt, Architect.

tire block. In plan it is most admirably adapted to the business for which it is intended, and in exterior design it does not offend. Whatever one finds, after a critical search for architectural precepts violated or followed, at first sight and afterwards it looks like a mighty sensible and business-like structure. It looks just like a department store. As an architectural composition, there are the three horizontal divisions, the base, the shaft part and the cap and the apparent strengthening of the corners is, as usual, on account of rigid practical requirements, omitted in the lower division. The unit of design adopted consists of two-window groups, and their relatively small width tends to emphasize the heights of the façades. The piercing of the corners also, by only one window, helps to make the building look taller. Another treatment which assists in adding to the apparent greater vertical dimensions is that given to the upper division of the façades, which is pierced by narrow arched openings with relatively deep re-

veals. Of course the unbroken row of piers, with the columns at the entrances make the lower division of the building look higher than it really is. The structural and mechanical details of this building are described in the new "Technical Department," following the text proper.

Reference was made in the first part of this article to the character of the smaller houses resulting from the big building "operations" and the speculative work carried on in Philadelphia. Less than four years ago a movement of great magnitude was started and is now going on toward a successful final completion. It is of real importance to the majority of the people of this city, for out of the approximately 355,000 buildings in Philadelphia, about 323,000 are dwellings and 85 per cent. of these dwellings are occupied by only one family. It is of great importance also to all who are interested in street architecture of the smaller city houses of the most modest rental.

Many years ago the first John Jacob Astor bought old farms, marshes and



Philadelphia, Pa.

PERROT GARAGE.

Ballinger & Perrot, Architects.



TYPICAL SECONDARY STREET OF TWO-STORY HOUSES.

21st and Pemberton Streets, Philadelphia, Pa.

hills where now are the blocks and squares of New York City, about 42d Street and Broadway; and in the Philadelphia of early days, Stephen Girard, in like manner, purchased various tracts of land, some of them at that time distant, lonely estates, but now districts in the very heart of the city. One of these farms, in the southern part of Philadelphia is now included in forty city squares. The management of the Girard estate is using the old farm for this important and novel improvement. There are at this time over two hundred homes standing on this land, and this is only a small beginning.

A view is presented which indicates clearly the character of the houses and the style of the architecture em-

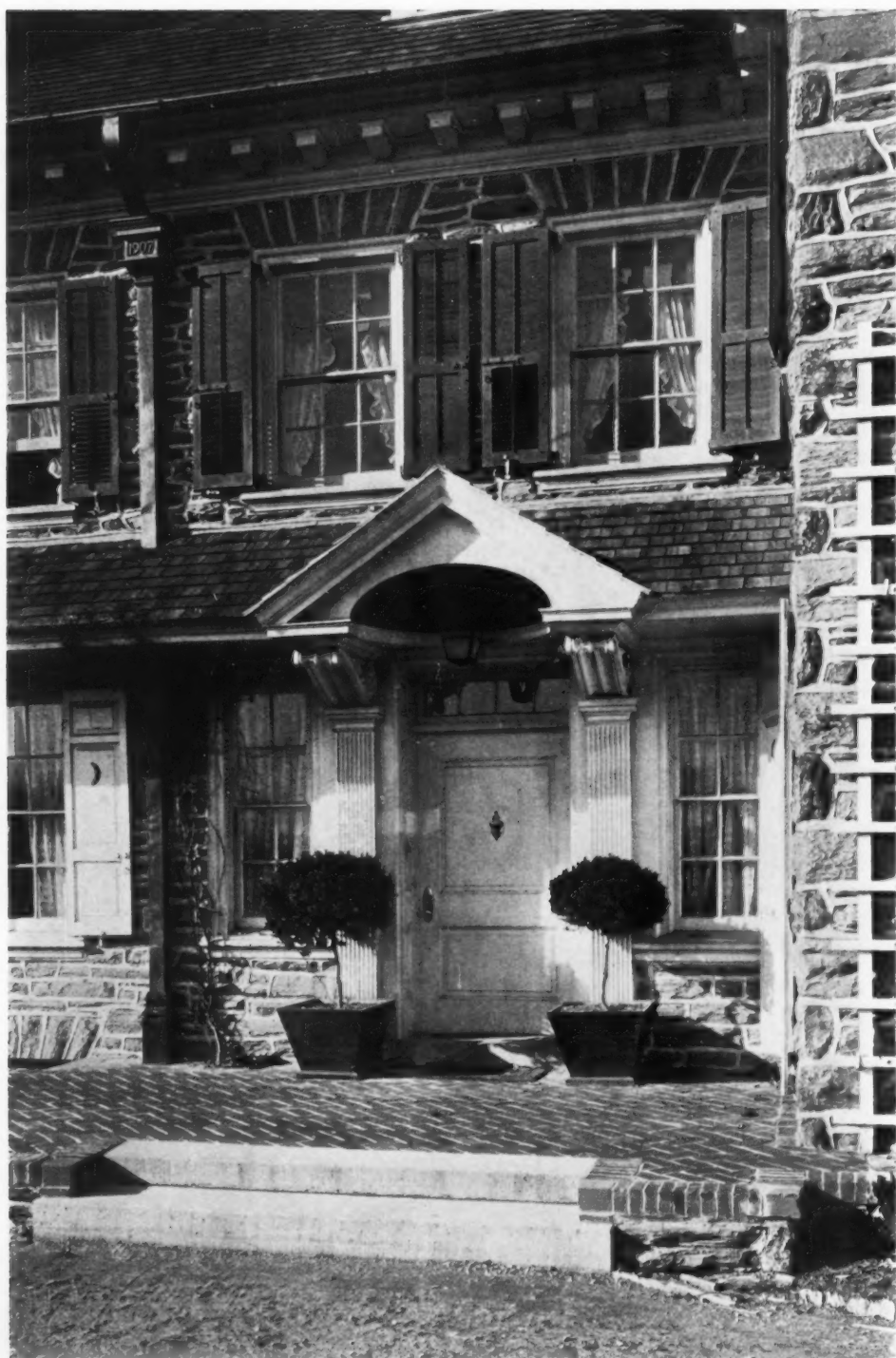
ployed in the different groups; and in order to show the contrast between the old and the new, a photograph of a typical secondary Philadelphia street is included. The new houses are built in pairs, the types of architecture always alternating. All are heated from one heating plant located in the center of each district, and the electric light also is furnished from this same point, while hot-water mains carry the water into the houses in an unlimited supply. Deducting the cost of light, heat and hot water, which is included in the rental charged, the total expense to the tenants is about on a par with that of the old houses shown. The architect of this great improvement is Mr. John T. Windrim.



GIRARD ESTATE OPERATION.

20th & Porter Streets, Philadelphia, Pa.

John T. Windrim, Architect.



DOORWAY DETAIL—THE B. F. PEPPER RESIDENCE.
Chestnut Hill, Pa. Brockle & Hastings, Architects.



THE SUBURBAN DWELLING AND COUNTRY VILLA

Group B

RECENT PHILADELPHIA ARCHITECTURE

By Prof. THOMAS NOLAN

MANY INTERESTING and beautiful examples of suburban dwellings and country villas have recently been added to the already large number in and around Philadelphia; and the architectural work has been widely distributed among the various offices. The Pepper, Welsh and Rawl houses were designed by Brockie & Hastings, the first two being at Chestnut Hill and the Rawl house at Bryn Mawr, Pa. All these country houses have been planned in a general way to meet the topographical contour of the properties and to obtain as far as possible the full advantage of the southern exposure for sleeping-rooms, living-rooms and porches. On the Newhall and Welsh properties it so happens that the best views of the beautiful landscapes are obtained from the rooms having a southern exposure. The house of Mr. B. Franklin Pepper is situated on the edge of the Wissahickon Valley, the main portion of the building being

surrounded by brick terraces, overlooking a series of terraced gardens. A very beautiful detail of the main entrance doorway is shown. While both the Pepper house and the Welsh house are built with the rough, local stone, the latter is trimmed with Bowling Green limestone. The roofs of the former house are shingled, while those of the latter are covered with variegated green slate laid with a graduated exposure to the weather, varying from 11 inches at the eaves to 5 inches at the ridge. The principal feature of the interior of the Welsh house is the main hall, which runs up through two stories. The view of the residence of Mr. Francis W. Rawl at Bryn Mawr presents in the elevation of the main part, a simple but altogether charming composition.

The residence of Mr. James McCrea, President of the Pennsylvania Railroad, at Ardmore, Pa., was designed by Bailey & Bassett, and, if the plan is

carefully examined, there will be discovered an arrangement of rooms that show the most careful study on the part of the designers, and with it all an exterior design full of interest and showing a comfortable balance of parts obtained in a most unstrained and natural manner. The family living rooms are well divided from those for the help, and the men's and maids' quarters are completely separated, so that each one is a comfortable home in itself without interfering one with the other. The covered archway through the kitchen

The setting of the building on a gently rising piece of ground and in front of tall woods of oak, chestnut and hickory is ideal, the house facing the south and being protected by the woods from the north winds. The first story is built of buff Holmesburg granite, the buff effect being most successfully carried out in the pebble-dashing above, and the warm, dark brown of the timber work and the light red of the tile roof standing out in contrast with the green background and harmonizing wonderfully with the softening colors of



THE FRANCIS W. RAWL HOUSE.

Bryn Mawr, Pa.

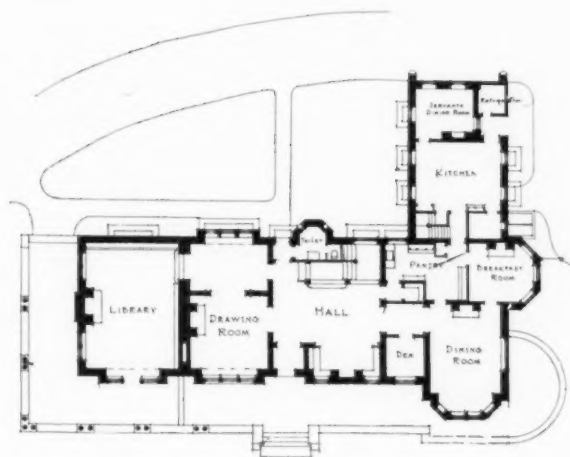
Brockie & Hastings, Architects.

wing isolates the laundry, under which are the boilers of the heating plant. Over the laundry are the men's quarters, reached from a separate outside entrance under the archway and over the kitchen and servants' dining room are the maids' rooms, both men's and women's quarters being provided with private sitting rooms. The family bedrooms occupy the second and third floors of the front building, the main feature of the first story being a large laundry, which, including the bedrooms above, were added to the original building.

autumn. Although the beautiful color effect in this instance may have been accidental with the architects, the selection of natural tones for the colors of the house has proved most happy in its results. The windows on the rear of the house look out upon the woods, bordered with rhododendrons and disclosing the white dogwood peeping out occasionally from under the branches of the taller trees and back through the woods can be seen the timbered gables of the stable and garage, as well as the cottages for the gardener, coachman and



Terrace Elevation.



FIRST FLOOR PLAN

Ardmore, Pa.

THE RESIDENCE OF MR. JAMES MCCREA.

Bailey & Bassett, Architects.



"OVERVIEW."

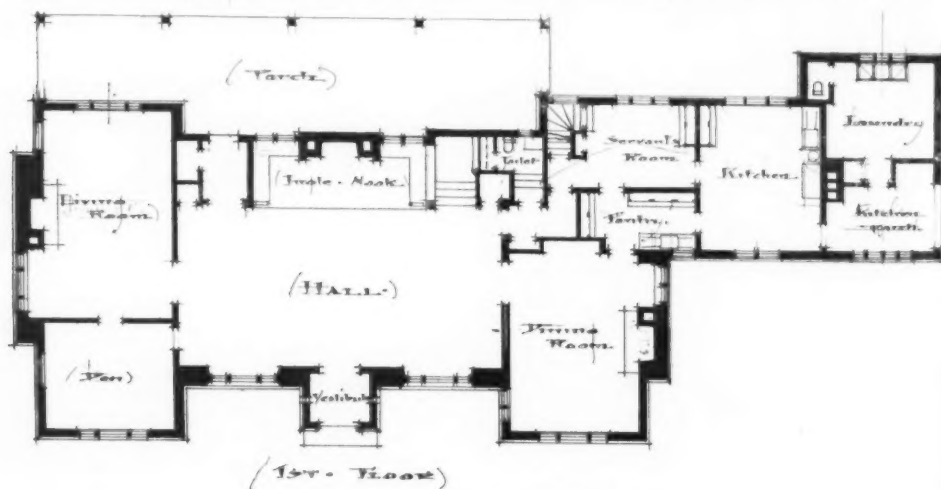
Villa Nova, Pa.

Bailey & Bassett, Architects.

chauffeur. On the edge of the woods to the southwest is the flower and vegetable garden combined in a formal design and embellished with a pergola of buff plastered columns and dark timber trellises.

"Overview" is the name most appropriately applied to a property overlooking, from a high point, the beautiful

Schuylkill River as it winds away among the hills, losing itself on the eastern slope of the Blue Ridge to the northwest. The long, straight road from the entrance gateway to the house reminds one of the formal approaches to many of the mansions on English soil, and the house itself is so thoroughly characteristic of English stone and half-tim-



FIRST FLOOR PLAN—"OVERVIEW."

Villa Nova, Pa.

Bailey & Bassett, Architects.

bered work, that one almost thinks of it as having been transported bodily across the sea. The color effect of the gray stone, the dark timber and red tile roof, the casement windows and the absence of the American piazza tend to create an English atmosphere and ought to bring contentment to any one from the British Isles unless, perchance, he took exception to the spacious piazza provided on the other side of the house where the view and breezes can be most appreciated. A great, two-story hall with ingle-nook and fireplace directly opposite the entrance vestibule is the

dates the horses, automobiles, coachman's family and chauffeur, and two covered driveways separate the three main divisions of the building, to the great advantage of each. These buildings were planned by Bailey & Bassett.

Economy and convenience in suburban work can sometimes be combined to great advantage in obtaining a harmonious effect while at the same time giving an air of group-importance, by joining together all the buildings of a property and still preserving their proper relation, one with another, without interference. Such was the problem to be



"EASTFIELD."

Villa Nova, Pa.

Bailey & Bassett, Architects, and Frederick Phillips as Associate.

most prominent feature of the interior. The two tall Tudor windows flanking the entrance, the high panelled wainscot and the overhanging balustrade, supported on heavy timber, suggest the thought of some substantial and dignified hall across the sea, but made informal and cozy by the great open hearth. The axes upon which the buildings and grounds are laid out have been considered even to the placing of the stable, which is centered at right angles to the entrance drive upon the circle in front of the house. The stable building, although designed as a unit, accommo-

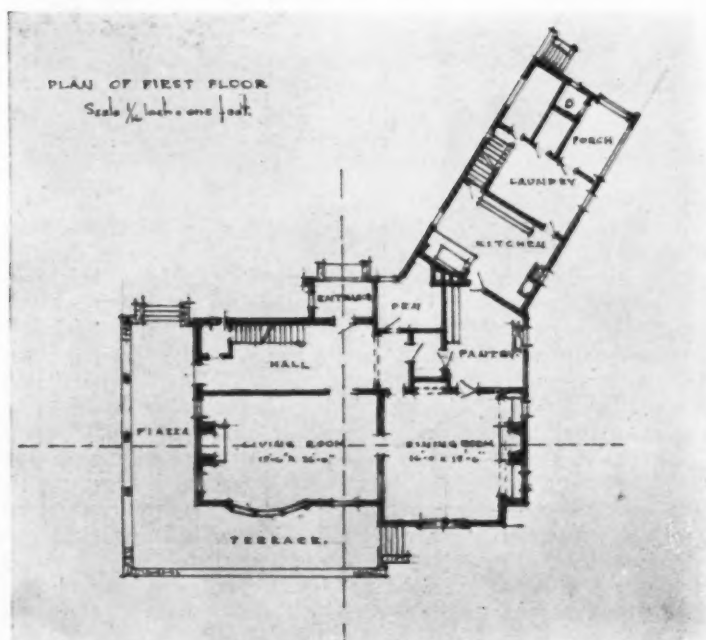
worked out in "Eastfield," a house located in the swing of the hills of Montgomery County, Pa., from which the valley drops away to the west, meeting the famous Gulph Hills in the distant background. The plan seems to combine everything necessary for a complete and comfortable country house. The entrance porte cochere separates the main building from the stable, the tool-room forming the end of the house and at the same time furnishing a screen from the stable yard and coachman's cottage, which latter has its main entrance and porch at the extreme end of



Ardmore, Pa.

RESIDENCE OF H. W. SELLERS, ESQ.

Horace Wells Sellers, Architect.



FIRST FLOOR PLAN.
RESIDENCE OF
H. W. SELLERS, ESQ.

Ardmore, Pa.

Horace Wells Sellers,
Architect.



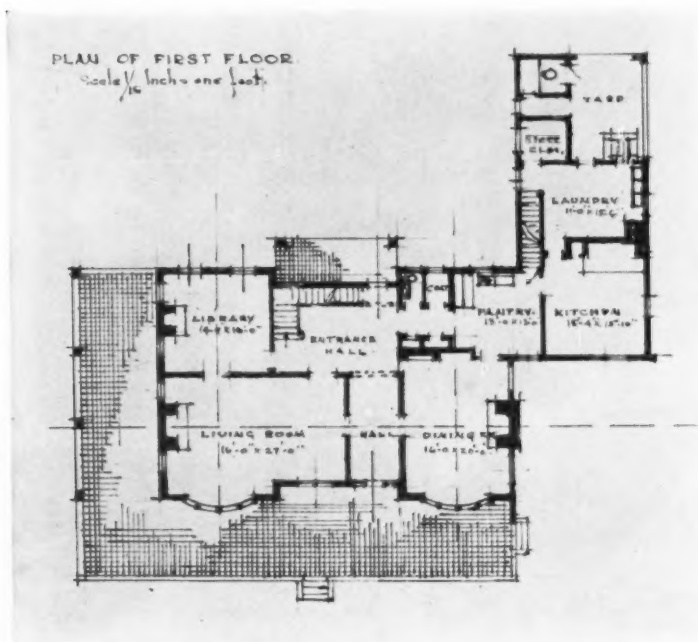
ENTRANCE DETAIL—RESIDENCE OF H. W. SELLERS.
Horace Wells Sellers, Architect.



THE RESIDENCE OF FREDERICK STOUT, ESQ.

Ardmore, Pa.

Horace Wells Sellers, Architect.

FIRST FLOOR PLAN.
THE RESIDENCE OF
FREDERICK STOUT, ESQ.

Ardmore, Pa.

Horace Wells Sellers,
Architect.

the buildings. A high vine-bedecked wall joins the two buildings and is the main connecting link of the whole group; the importance of the kitchen wing which entirely cuts off the stable from the general view, thereby making for privacy, cannot be overestimated. The yard from the spacious porch and extensive gardens on the living side of the house, a wall extending from the end of the kitchen wing and high windows on this side of the servants' quarters, insure still further privacy. The plastered wall furnishes an ideal surface, facing to the southwest, for creeping vines and flowers. The ground is well adapted for flowering plants, and two springs on the property are ready for the filling of a large pond, to be a reality in the near future. The first story consists principally of a large spacious hall, den, living-room, dining-room, servants' hall, kitchen and laundry. Seven family rooms and three baths are provided on the second story, with accommodations for four or five servants and with a bath on the third story. Connected with the stable for horses and carriages is a cottage for the coachman's family, and also a garage and chauffeur's apartments. What is saved in long driveways and paths and in the keeping of them in repair is applied to the garden and planting, which have become such important features of all modern villas. Bailey & Bassett with Mr. Frederick Phillips as associate were the architects.

Some of the most successful country villas designed by Bailey & Bassett are to be found on the slopes of the hills of Montgomery County, Pa., and these long, low, restful buildings have a particular interest and charm. From their position they often command both near and distant views of unusual beauty. Between the houses and the hedges terraces are often planned for the rolling land, and there are lawns outlined with flowers. Flights of rustic steps frequently lead to extensive formal gardens, bordered with privet and divided with paths of grass. Down some of the hills flow cool streams from nearby springs, which broaden into ponds,

the surroundings of which have, on one estate been converted into a Japanese garden, the stepping-stones, bridges, dwarf-planting and other accessories being in keeping with this interesting method of landscaping. These long, low houses, nestling in the midst of gardens which extend with the rolling fields and the outline of distant hills as far as the eye can see, are most happily placed. The long effect has been accomplished by the horizontal lines of



Terrace—Residence of Frederick Stout, Esq.
Ardmore, Pa. H. W. Sellers, Architect.

the houses, the wide spacing of the dormer windows, and the short, vertical lines. The architectural composition of the different parts of a group of buildings contributes much to the comfortable setting, and should nicely express the relative importance of each. In these successful designs the living quarters of the plans are arranged to command the best exposure appropriate to each, the vistas from room to room, and through the windows to the views beyond, being artfully cared for: the



SOUTH FRONT—THE COLTON RESIDENCE.
Bryn Mawr, Pa.
Horace Wells Sellers, Architect.

rising sun for the dining-room and the southwestern breezes for the living-rooms, while even kitchens get their share of the western air. Stables and garages are given every attention in regard to their various requirements and planned and located so as to avoid discordant notes and unpleasant reminders. Red tile roofs, contrasting with the white plaster and the dark asphaltum

timber work, and all against the green hills beyond, furnish pictures of harmonious, restful country houses.

The residences of Mr. Horace Wells Sellers and of Mr. C. F. C. Stout on the Glenn Road, Ardmore, Pa., were both designed by Mr. Sellers, the materials used in the former structure being rough finished stucco over brick, with exposed brick rowlock arches over



ENTRANCE DETAIL—THE COLTON RESIDENCE.
Bryn Mawr, Pa. Horace Wells Sellers, Architect.

the windows and at the entrance porch, as shown in the photograph of the entrance detail; and heavy mottled purple and green slate on the roofs, varying in thickness from $\frac{7}{8}$ -inch at eaves to $\frac{1}{4}$ -inch at ridges. All the exterior wood finish is of oak, and the door frames and window frames are pinned at the joints with projecting oak pins. The Stout house is of brick, laid with the dark headers in the Flemish bond, the roofs being covered with split cypress shingles. The general architectural treatment and detail are Georgian. Both these houses were designed to occupy ground on either side of an existing residence designed by the same architect, and in locating them the desire was to avoid placing all three buildings in a line but at the same time to take advantage of the topography in bringing them into attractive relation, each one to the others. The ground lies between two thoroughfares with a fall of about fifty feet between them, the level ground fronting on the upper road on the east and falling away rapidly to the lower road on the west frontage of the properties. Taking the then existing house as a basis and following the same contour, the location of the Sellers house was brought to the west of it. As this same contour, if followed out, would bring the Stout house too near to the road, because of the small area of level ground on the upper frontage, it was decided to throw the house site forward on the slope, necessitating the formation, by cuts and fills, of a level platform to receive it and at the same time to arrange the grading so as to give the appearance of a natural variation in the topography. In this way all three houses were brought into happy relation with each other when viewed either as a whole, from outside or from any one of the properties. The planning of the houses was also influenced by the conditions mentioned, as the entrance in each case had to be from the upper road to the north and east, toward which the back buildings would be naturally moved so as to allow the living-rooms of the houses to face the

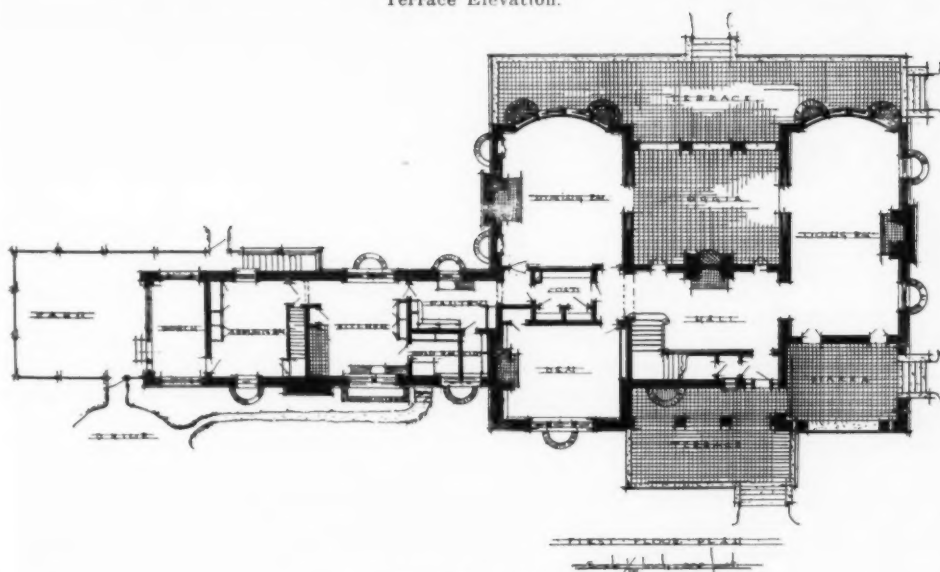
south and west and to overlook the sloping ground to the lower road. The driveways, therefore, in each case had to pass the kitchen quarters. In the Stout house this problem was met by throwing a large portion of the kitchen yard under the servants' rooms in the back building and by forming walled enclosures, so that all utilities are screened not only from the driveway but from view from all sides. In the case of the Sellers house the kitchen yard is enclosed by walls.

The residence of Mr. Sabin W. Colton, Jr., is located at Bryn Mawr, and is another of Mr. Sellers' interesting and successful designs.

The problem presented to the architect in this case involved at the outset the replacing of an existing dwelling by a building of much larger size, and so arranged as to encroach no further than possible upon finished driveways, plantings and surrounding improvements. These conditions in a measure determined the plan and especially the diagonal kitchen wing which appears on the north front. The house is of brick and the exterior walls are faced with stucco. The roof is of heavy mottled green and purple slates, laid in random sizes. The architectural detail is late Georgian. While, as stated, this building was originally designed to conform exactly to existing conditions, the possibilities of the site and certain incongruities of the existing improvements led finally to a larger scheme which was developed under the advice of the landscape architects, Olmsted Brothers. As the owner's supplementary requirements called for a garage, for greenhouses and accessories to adjoin the existing stables and for barns and out-buildings and furthermore, as these existing buildings were of frame construction and the result of a more or less unsightly architectural treatment, their ultimate replacement seemed inevitable and their existence unworthy of consideration in the new work, except in so far as by planting, they could be screened from view. Accordingly, in order to bring the proposed new out-buildings into proper relation to the house they were



Terrace Elevation.



First Floor Plan.

THE SAXMAN RESIDENCE.

Philadelphia, Pa.

Horace Wells Sellers, Architect.

placed on its axis to the north and between the house and the old out-buildings. Greenhouses, hot-beds, etc., were inclosed with high walls and sunk below the general level of the ground, terminating in the garage which was brought into attractive relation with the sheds and other accessories of the greenhouse group. The south wing or end of the dwelling house terminates in a loggia or a piazza at the edge of a group of chestnut trees. From this, on the south axis of the house, a stone

The country residences chosen to represent some of the recent suburban work of Cope & Stewardson are those of Mr. R. K. Cassatt, Mr. E. L. Stewardson and Mr. Isaac Starr.

The main portion of the house of Mr. R. K. Cassatt, at Rosemont, Pa., was built a few years before the wing extending out on the left and shown in the photograph. The walls are of rough stone dashed up with mortar and then whitewashed, the cut-stone being from Bedford, Indiana. The roof is of



THE RESIDENCE OF ISAAC STARR, ESQ.

Chestnut Hill, Pa.

Cope & Stewardson, Architects.

walk, flanked by stone benches at the entrance to the grove leads through it and terminates at a wall, with pool and a niched fountain-head. At right angles to this walk and parallel to the pool and its wall, a broad stone path leads to a lattice pavilion at the east and in the opposite direction to a stone tea-house or pavilion which forms the termination of a long arbor facing a formal flower garden.

The Saxman Villa, another of Mr. Sellers' very interesting and successful designs, is shown in the accompanying photograph.

tile, varying in color from medium red to dark. The first story of the wing contains a dining-room, smoking-room and porch and above are the bedrooms and the nursery. The entrance front of the residence of Mr. E. L. Stewardson, at Abington, Pa., is the one shown in the photograph. The other side looks out over rolling fields to the woods beyond. The exterior walls are of smooth plaster, rendered in a grayish white and the woodwork is painted green with the exception of the roof shingles which are left in their natural color. The chimneys are of

brick, whitewashed. The planting in the immediate vicinity of the house has not yet had time to develop, and the young vines have not yet climbed the trellis prepared for them. In the angle between the main building and the kitchen wing is the second-story porch for outdoor sleeping. The house of Mr. Isaac Starr is in the suburb of Chestnut Hill. For the color and texture effects the architects have used dark bricks for the outside walls and weather-stained cypress shingles for the roofs, the shutters in the second story being

difficult, as it was necessary to meet rather unusual conditions of approach and severe grades on the grounds, as well as on the avenues. The materials used are Chestnut Hill stone, laid in random-range work, with trimmings of Indiana limestone, the pointing being of the color of the latter. All exterior woodwork is white and the roof is of shingles. The plan is formal, with rectangular rooms and halls, arranged on simple axes, the stair hall being subordinated to the main hall.

Some of Mr. D. Knickerbacker



RESIDENCE OF MR. E. L. STEWARDSON.

Abington, Pa.

Cope & Stewardson, Architects.

painted a dark green and those in the first story white. The second story, extending over porch, is partly occupied by a sleeping porch which is shown in the photograph with the winter sash in place. There is a carriage entrance and porch on the further side of the house.

The residence of Mr. Frank R. Watson, of the firm of Watson & Huckel, architects, is in Germantown.

It is built on ground lying very much above the avenues on which it faces. The problem of position was somewhat

Boyd's recent work is shown in the photograph of the Thayer residence at Haverford, Pa., and in the terrace detail taken from the residence of Mr. P. D. Baugh at Merion, Pa. The old Thayer residence was a small and in-artistic brick structure and the view shows some of the additions and alterations in connection with a portion of the house. The problem was to give the owner additional room and at the same time to design a house that would be long and low. The new brick-work is of ordinary red bricks, the "run of the

kiln," with fire-flashed surfaces selected for the exterior and laid with wide, yellow joints. The brickwork of the old house was of an altogether different kind and the design was therefore influenced by the necessity of covering all of the old brickwork with stucco. A noticeable feature of this house is the absence of the usual pitched roof piazzas, although ample porch space is provided under the second story overhangs, one of these being so arranged that it can be entirely enclosed with casement sash or doors. These porches are paved with brick and one has a fireplace.

There is no porte-cochère, but rather,

the brick being rough-coated with plaster of a gray color. The general tone of the stonework is a brown-gray, with other colors mixed in, many of the stones being turned with the wide, flat face exposed and the roof is of gray-green slate. Two porches are connected by an open brick-paved terrace, one view of which is shown.

The residence of Mr. A. E. McVitty, at Bryn Mawr, Pa., was designed by Mr. Charles Barton Keen, in a style which may be referred to as "Georgian," and in the tones and textures resulting from the brown-red body colors of the brick walls and the green of the tile roofs, framed and bordered with



RESIDENCE OF R. K. CASSATT, ESQ.

Rosemont, Pa.

Cope & Stewardson, Architects.

a large hood extending out over the driveway. Here and there jugs and crocks of different colors have been built into the brick walls to serve as nesting places for the wrens which have always favored this house with their presence. Around these jugs have been formed squares or diamonds in flush brickwork of varying colors. The walls above the exposed brickwork are covered with a grayish-buff, roughened plaster and the roofs throughout are of red tile with a special treatment devised and applied by the owner and architect to produce the effect of moss.

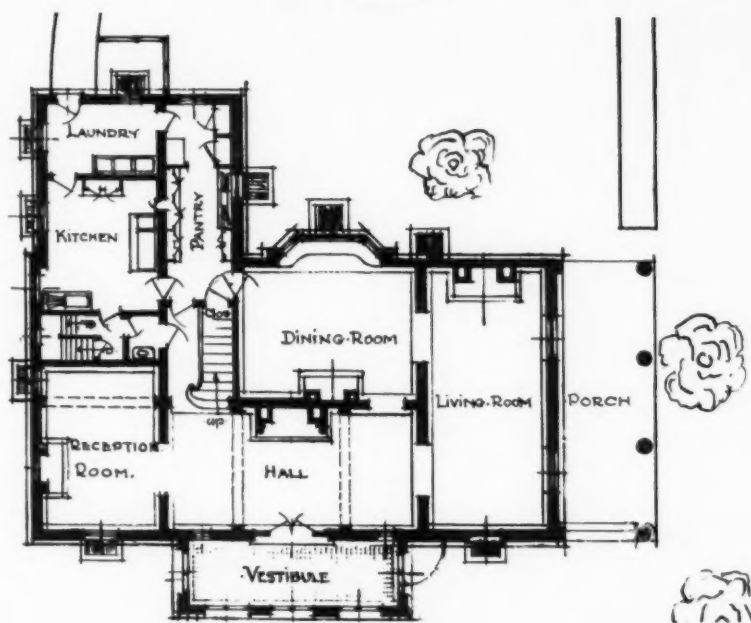
The residence of Paul D. Baugh at Merion, Pa., is built of stone and brick,

the white of doorway and cornice, dormer, pediment and trim.

Mr. Hokanson's own house at Lansdowne, Pa., and the residence of Mr. Samuel H. High, at Jenkintown, Pa., are taken from many interesting designs of suburban work recently executed by Heacock & Hokanson. In the former building the exterior walls of the first story are faced with rough, hard Jersey brick, while the gables are of pebble-dash. In style the design suggests, in general expression, the modern English cottage architecture, modified, as usual, and the final result is a pleasing, comfortable-looking suburban home.



Elevation.



First Floor Plan.

RESIDENCE OF FRANK R. WATSON, ESQ.

Germantown, Pa.

Watson & Huckle, Architects.

The Mohr and Morris houses were designed by Savery, Sheetz & Savery.

The Gloss K. Mohr house, which also is at St. Martins, is built of gray Germantown stone, including the chimneys, the stonework being laid with wide, white joints. The two large bays terminate the living-room and dining-room and the two sleeping-rooms of the second story. The roof is of red slate. A brick-paved terrace with privet

shown in the photographs. The design of the former building, a simple solid-looking stucco-covered mass, includes an interesting doorway, which is shown in larger detail in the full-page photograph. Two fluted Roman Doric columns, standing on each side of the door trim and in front of pilasters, support modillion-brackets and dentilled bed-molds which in turn support the cornice-molded platform of a second-



TERRACE DETAIL—RESIDENCE OF P. D. BOUGH, ESQ.

Marion, Pa.

D. Knickerbacker Boyd, Architect.

balustrade runs along the front and there is a deep porch on the east end. A "Germantown Hood" shelters the front door and the stair-hall window which adjoins it. In the residence of Mrs. Evan Morris, at Rosemont, Pa., we have a fine example of half-timber work.

Mellor & Meigs are the architects of the Edward F. Beall house at Stafford, Pa., and of the house at Cynwyd, Pa.,

story balcony. Around this is a wrought-iron railing, shown clearly in detail.

The residences of Mr. Richard L. Austin at Chestnut Hill, and of Mr. Jules C. Wellens, Jr., were designed by Bunting & Shrigley. The former edifice, constructed of rough-faced Chestnut Hill stone, with finely-dressed limestone trimmings, has roofs of red tiles and porches and terraces paved with Welsh quarry tiles; while the latter is



ADDITIONS TO THE THAYER RESIDENCE.
Havertown, Pa.
D. Knickerbocker Boyd, Architect.

of stucco on brick, with a red slate roof. The bricks were allowed to project beyond the face of the stucco to form patterns in the gables and Mercer tiles were inserted about the door and window openings. The color of the stucco is oyster grey, while that of the shutters is green. All the porch floors are laid with red bricks. A photograph taken from the entrance driveway of the Austin house is shown.

One of the designs from the office of Mr. George Bispham Page is that for the residence of Mr. Charlton Yarnall

as well as from the point of view of design and of its setting and surroundings. One feature only of its construction will be mentioned, and that is in regard to the first and second story floors. They are of concrete and two columns only support them. The under floors themselves are ten-inch solid concrete slabs, the finished flooring being of quartered oak, laid in wooden sleepers. From top to bottom, throughout its interior detail, are numerous improvements in construction and niceties in the details of design.



RESIDENCE OF A. E. McVITTY, ESQ.

Bryn Mawr, Pa.

Chas. Barton Keen, Architect.

at Haverford, Pa., and a perspective view taken from the driveway is included in this list of representative Philadelphia suburban architecture of recent date.

Only one example taken from the numerous interesting recent designs from the office of Mr. Robeson Lea Perot is shown; but, if the limits of this article allowed it, many others would be chosen and described. The one presented is a view of the front façade of Mr. Perot's own dwelling. It is interesting on account of its construction

The design of the "House on Summit Avenue," Jenkintown, Pa., shows one of many executed recently by Bissell & Sinkler, and presents a successful solution of the problem of the well-planned, well-built, attractive suburban house, erected on a small lot and rented for a moderate sum.

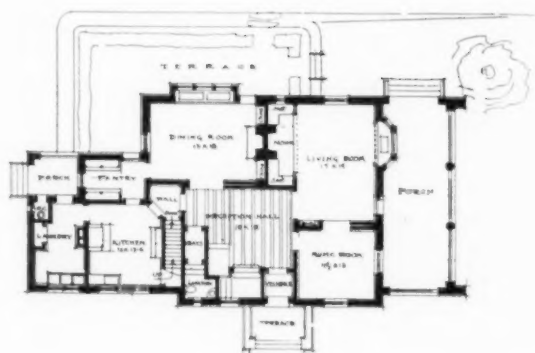
The two photographs, one showing the old, stone barn, which Mr. Mantel Fielding changed into the charming design for his own dwelling, and the other showing the finished design itself, are presented as most interesting illustra-



THE HOKANSON RESIDENCE.

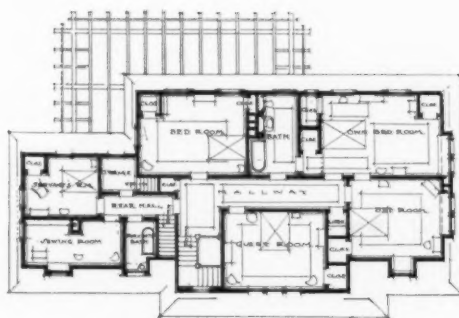
Lansdowne, Pa.

Heacock & Hokanson, Architects.



First Floor Plan.

RESIDENCE OF MR. HOKANSON.
Lansdowne, Pa.
Heacock & Hokanson, Architects.



Second Floor Plan.



Cynwyd, Pa.

HOUSE AT CYNWYD, PA.

Mellor & Meigs, Architects.



Stafford, Pa.

RESIDENCE OF EDWARD F. BEALE, ESQ.

Mellor & Meigs, Architects.



FRONT DOOR DETAIL—THE RESIDENCE OF
EDWARD F. BEALE, ESQ.
Stafford, Pa. Mellor & Meigs, Architects.



St Martins, Pa.

RESIDENCE OF GLOSS K. MOHR, ESQ.

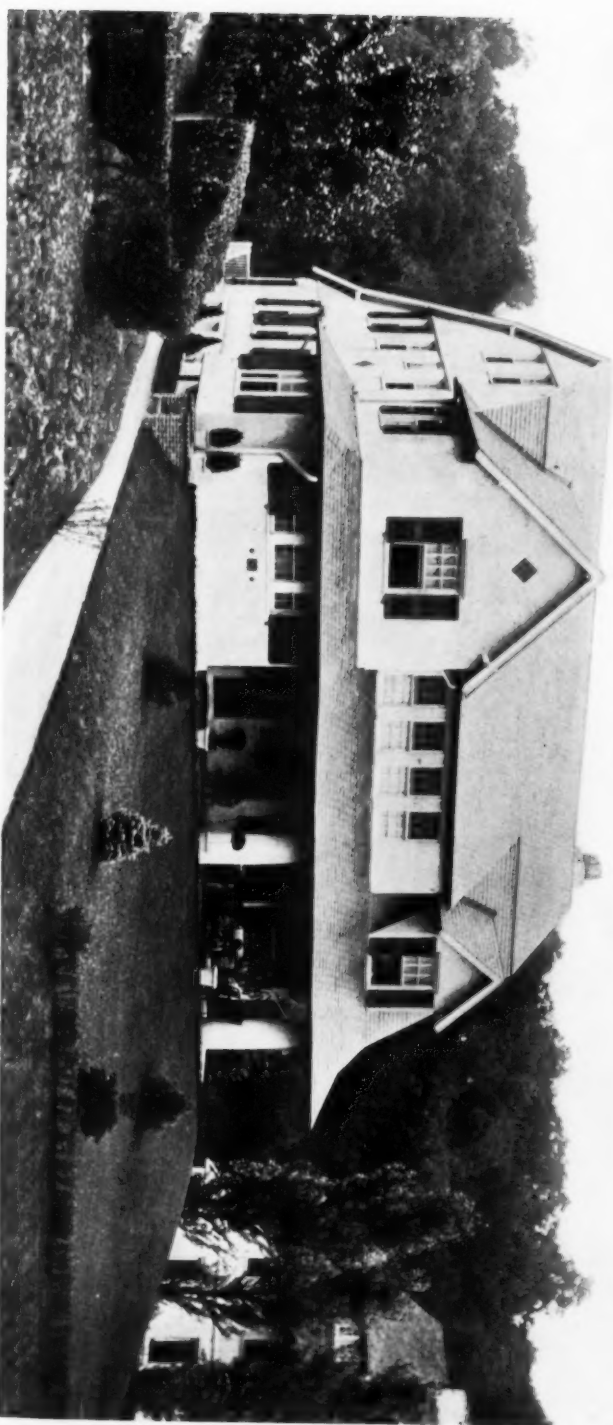
Savery, Scheetz & Savery, Architects.



Rosemont, Pa.

RESIDENCE OF MRS. EVAN MORRIS.

Savery, Scheetz & Savery, Architects.



THE RESIDENCE OF JULES C. WELLEN, ESQ.
Ardmore, Pa. Bunting & Shrigley, Architects.



Jenkintown, Pa.

RESIDENCE OF SAMUEL H. HIGH, ESQ.

Heacock & Hokanson, Architects.



Germantown, Pa.

RESIDENCE OF R. L. PEROT.

Robeson Lea Perot, Architect.



Chestnut Hill, Pa.

RESIDENCE OF RICHARD L. AUSTIN.

Bunting & Shrigley, Architects.

tions of what skill may accomplish in solving architectural problems. Again, lack of space in a short paper like this prevents the publication of interior

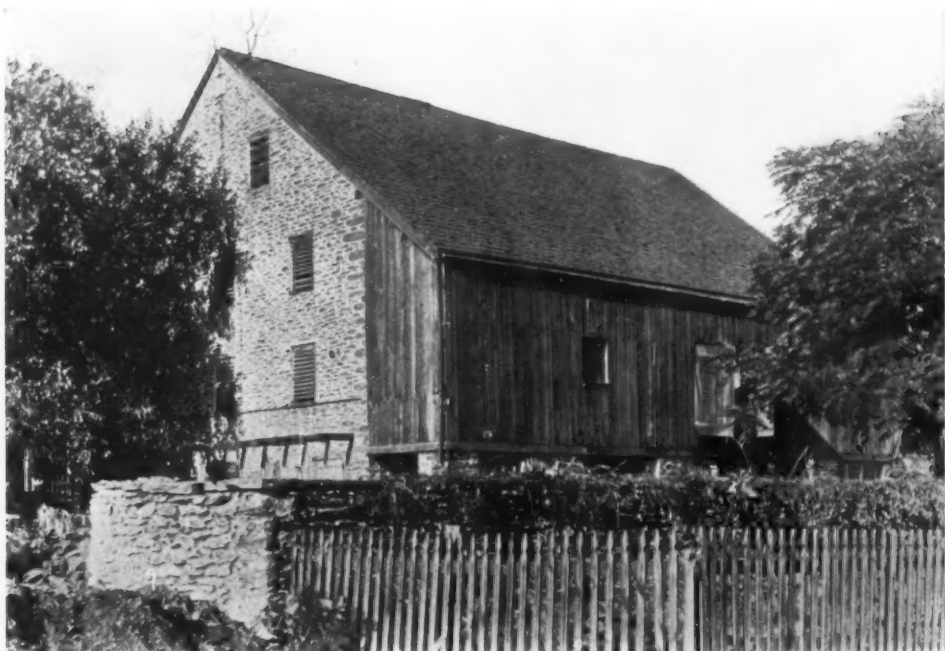
views; but the writer knows of them, of the cleverness in general arrangement and plan and of the great refinement of detail.



Haverford, Pa.

THE RESIDENCE OF CHARLTON YARNALL, ESQ.

Geo. Bispan Page, Architect.



BARN FROM WHICH RESIDENCE OF MANTEL FIELDING WAS BUILT.



RESIDENCE OF MANTEL FIELDING.

Chestnut Hill, Pa.

Mantel Fielding, Architect.

THE EVOLUTION OF ARCHITECTURAL ORNAMENT

IX.

Minor Enrichments

By G. A. T. MIDDLETON, A. R., I. B. A.

THERE ARE certain small enrichments which have come to be recognized as being almost more indicative of the work of particular periods and countries than larger features and even principles of design; yet it has been impossible to classify them under any of the headings which have hitherto been used in this series. Many of them have had, with their variations, an extraordinary persistence, but as a general rule there is a strict line of demarkation between those which are Classic and those which are Gothic.

The principal Classic enrichments of this description (called "minor" merely on account of their size and not because they are of little importance) are the egg and tongue, the leaf and tongue, and the dentil; while the corresponding Romanesque and Gothic features are the billet, the nail head (with its development, the dog-tooth), the ball flower, many combinations of these, and eventually the crenelle cresting.

The one which can be most easily traced to a definite origin is the egg and tongue, and it requires a certain amount of imagination to recognize the development. Take the example of the fragment of Assyrian pavement, now in the British Museum, which is illustrated in Fig. 197; hold this sideways or upside down and notice how the border or fringe of alternate lotus-buds and flowers form incipient eggs with their shell, having tongues placed intermediately. This little fragment also shows a geometric pattern in the centre from which quite possibly, one might almost say certainly, may have been derived the Arabesque work of the Moors and of India to which attention was drawn in the

last chapter; while there are two rows of pateræ (flowers) and another row of the incipient anthemion—a large scale sketch of which last was shown in Fig. 6, at the commencement of this series. Concentrating attention upon the egg and tongue, it is found as a true architectural enrichment in an elementary form in early Greek work. It appears, for example, on the echinus and abacus of the Ionic column in the Archaic Temple of Diana at Ephesus, of which there is a very clever restoration by the late Dr. Murray in the British Museum (Fig. 198). This time the egg shell—if the border may so be called—was in the form of a bold roll and the egg was rounded at the base, while the tongue was merely incipient. By the time that this temple had been replaced by the later one, the great Temple of Diana of the Ephesians of St. Paul (the early temple having been built about B. C. 550 and the later one about B. C. 350), the enrichment had been completely developed, as is seen on the capital shown in Fig. 199, the eggs of which are amongst the largest known. They are pointed and beautifully cut, and the shell is sharply defined. A slightly earlier but equally perfect example of the enrichment has already appeared in Fig. 13.

With slight degradation of form it has been retained, as possibly the most characteristic of all Classic enrichments, throughout the Roman and Renaissance times. A quite common Roman variation has appeared in Fig. 42, the eggs being somewhat widely spaced and the tongue being replaced by a dart, or barbed arrow head. A much more crude Romanesque variant has appeared



Fig. 197. Fragment of Assyrian Pavement.
(British Museum.)

in Fig. 45, the eggs having there more the appearance of elongated balls and being without the straight top which they ought to possess in accordance with true Classic precedent. But this was revived during the Renaissance period, most of the examples of which date can hardly be distinguished from their Classic prototypes, though one is given in Fig. 200, carved upon one of the projecting corbel beams of a house in Halberstadt, North Germany, which shows that further variations were possible. It was, however, quite a common thing both in Roman and Renaissance work to overload the eggs and the darts (or tongues) alike with foliage.

The leaf and tongue may possibly be a mere variant of the egg and tongue, suited for carving upon the cyma reversa moulding instead of upon an ovolo, and having a cyma or double curved outline. The example illustrated



Fig. 198. Capital from Archæic Temple of Diana
at Ephesus.

in Fig. 201 is again taken from the later Temple of Diana at Ephesus. It will be noticed that the tongue is precisely the same as that in the enrichment of which this may perhaps be a derivative, while the so-called leaf has a border just such as the egg has, though its own modeling is essentially different and there is a strong centre line to it. This ornament proved to be capable of a great deal of variation. Fig. 202 shows it as it appears on one of the exhibits in the Greco-Roman room in the British Museum, retaining to a considerable extent the refined precision of



Fig. 199. Capital from the Later Temple of
Diana at Ephesus.

outline of Greek work, but with a triple leaf introduced in the centre of the leaf pattern and with the point differently formed from that which is generally accepted as being typical. The purely Roman example in Fig. 203 rounds off the outline, in conformity with the usual Roman inclination to adopt segments of circles instead of delicate hand drawn curves or portions of conic sections, while the tongue has been changed into something more nearly approaching a leaf in shape.

When the Renaissance came, the leaf and tongue was revived in almost precisely the same form as previously,

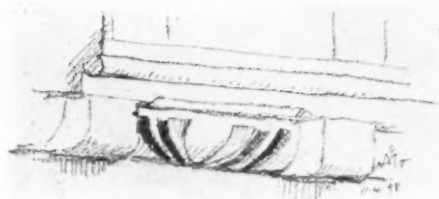


Fig. 200. Corbel to Overhang, House in Halberstadt.

sometimes more like the Greek, at other times more like the Roman, but frequently, as was the case with the egg enrichment, overlaid with foliage. One form was, however, introduced which is never found in the Greek work, though it has been discovered in the Roman, and that is a series of leaves without any intervening tongues or darts, as is shown in the small piece



Fig. 201. Top Moulding of Pedestal, Temple of Artemis (Diana) at Ephesus.

of leaf enrichment from the mantelpiece of Langley Park, Kent, of quite late Renaissance date, illustrated in Fig. 204, very nearly full size.

The dentil is another enrichment to which an origin can be found without any extraordinary stretch of imagination. Examination of the Lycian Tomb shown in Fig. 205, or of that which has already been illustrated in Fig. 130, would indicate that the timber construction which was being copied necessi-



Fig. 202. Greco-Roman Leaf and Tongue.

tated the appearance of a number of rafter ends below the cornice. Similarly, purlin ends appear within the verge of the arched roof. It may not necessarily follow that the dentil was directly derived from these timbers, but that it originated in some such timber construction is fairly obvious from the position in which it was mostly found in



Fig. 203. Roman Urn.
(British Museum.)

Greek work, as indicated in Fig. 206, where it appears beneath the cornice on the entablature of the Mausoleum at Hallicarnassus, as this is now re-erected in the British Museum. This exactly coincides with the position which the rafter ends occupy in the Lycian Tombs. The effect, however, is that of a series of square blocks of stone, and in many subsequent uses these occur as the tin-

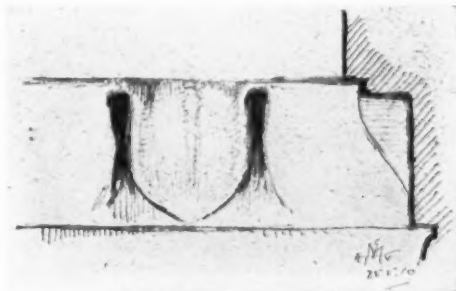


Fig. 204. Leaf Enrichment, Mantelpiece, Langley Park, Kent.

iest of enrichments, cut out either in woodwork or masonry and employed almost invariably to break up the density of a shadow; in this manner sustaining the tradition of their original employment underneath an overhanging cornice. It will be noticed that, in con-



Fig. 205. Lycian Tomb.
(British Museum.)

tradistinction to this, the function of the egg and the leaf enrichments was to break up the light, where it impinged upon curved surfaces, in a similar ornamental way.

The idea of breaking up a shadow by regularly spaced blocks was employed again in Romanesque times, but it was then effected by means of circular blocks and not square ones. The billet ornament shown in Fig. 207 was that which was employed, and although the name was given to it at a much later date there is every probability that it had a timber origin. There is no connection that can be traced between this and the Classic dentil, but the effect achieved is very much the same. It occurs here (in Fig. 207) beneath the hood moulding of the windows round the Templar's

Church at Laon. But it is rare to find it upon the continent of Europe. It is much more common in English Norman work, as is shown in Fig. 208, similarly placed beneath the hood moulding of the nave arcade of St. Mary's Church, Dover, a church whose western arch leading from the nave to the tower, which appears in the photograph, is of pre-Norman date and depressed in shape, forming a slight horse-shoe, while the jambs are not quite vertical.

It will be noticed that the effect both of the billet and the dentil, when small, is not entirely unlike that of the bead



Fig. 206. Entablature of the Mausoleum at
Halicarnassus.
(British Museum.)

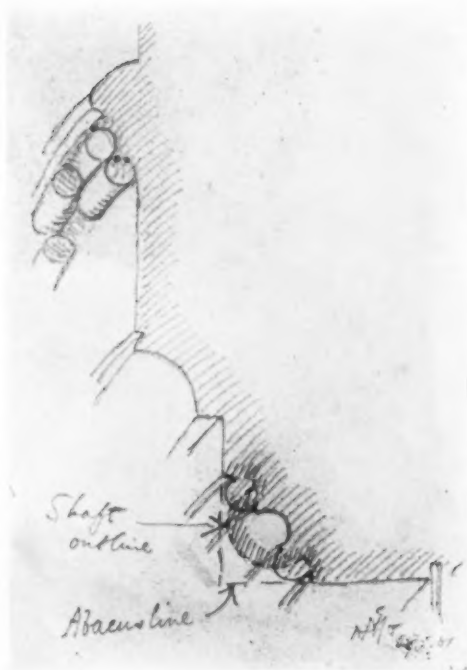


Fig. 207. Arch Moulding of Windows Round Rotunda, Templar's Church, Laon.

and reel, of which there are many variations in Classic and Renaissance times, though it will suffice to indicate here that two different Greek forms are to be seen on the small rolls beneath the echinus with its large egg and tongue enrichment, both of the Archaic and later Ionic columns at Ephesus, shown in Figs. 198, 199 and 201.

When discussing Fig. 183, reference was made to the appearance of a square



Fig. 208. St. Mary's Church, Dover.

nail head enrichment within the Greek key pattern thereof. Such a nail head has rarely been found in Classic work, but it was quite a common enrichment in the Continental Romanesque and the English Norman, having apparent origin in a crude attempt to decorate a surface without much effort by persons who were not possessed of elaborate tools. It is seen, for instance, in the corbel string over the choir stall of St. Nicholas at Blois, shown in Fig. 209, alternating with simple hatched sinkings of the surface, these being the two different methods of obtaining texture employed thereon. Some much more elaborate examples are to be found in the jamb of the south doorway of Bourges Cathedral (Fig. 210), where the nail heads appear in several places, occupying, in fact, the whole surface of one of the shafts.

This nail head is nothing other than a straight outlined four-branched star, but its capability of developing into an ornament is very great. This seems to have been recognized earliest upon the continent. One of the first examples of its evolution into what one may call an incipient dogtooth occurs on the arches of a 12th century house in the old town of Dol in Brittany, which is shown in Fig. 211. Here the original

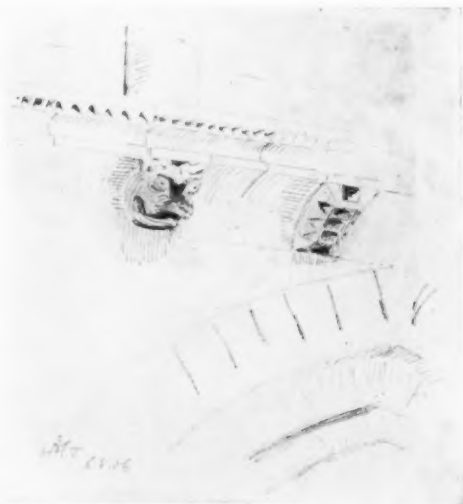


Fig. 209. Corbel String over Choir Arcade, St. Nicholas, Blois.

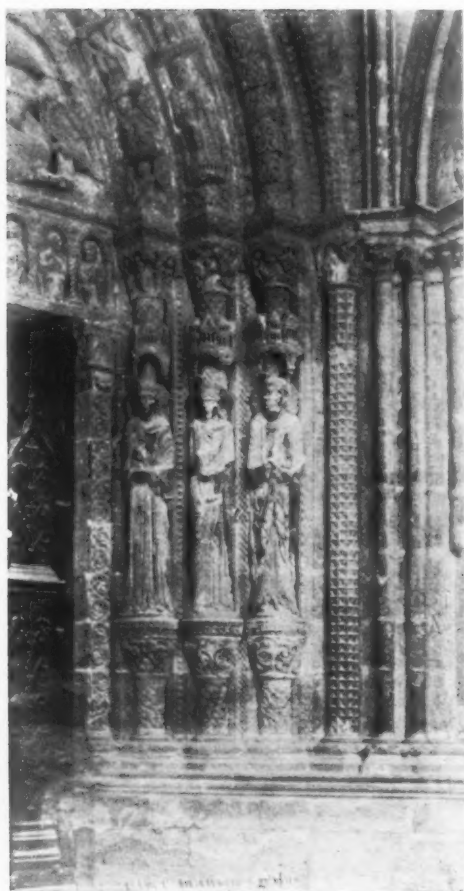


Fig. 210. Jamb of South Doorway, Bourges Cathedral.

nail head has been replaced by a four-leafed flower, still rudely carved and varying considerably throughout the range. It will be noticed that a ball centre has been given to it. This idea, crossing over to England, developed into the Norman dogtooth, shown in Fig. 212. Neither of these forms is common, but they may well be considered to be steps in the evolution of the true dogtooth enrichment, though the last example is even more definitely a flower than is that at Dol; the centre ball is more pronounced, and has a small knob upon it, while other little ball knobs appear along each of the petals.

The true dogtooth ornament, as shown in Fig. 213, appeared simultane-



Fig. 211. Detail on 12th Century House.

ously in France and England, though in France only where English influence was predominant. This particular example is another taken from the Templar's Church at Laon; the dogteeth are cut in a hollow between two rolls, here, as in all cases, so placed that they could be easily carved out of a rectangular block of stone, in this instance that from which the vault rib was fashioned; and also, again, as in most other cases, appearing as the enrichment of a hollow and intended to break up the extreme depth of its shadow. It is more rarely employed beneath a hood moulding in the position commonly occupied by the Norman billet or nail head, but it is found there sometimes, as can be



Fig. 212. Dogtooth, Barfeston Church, Kent.

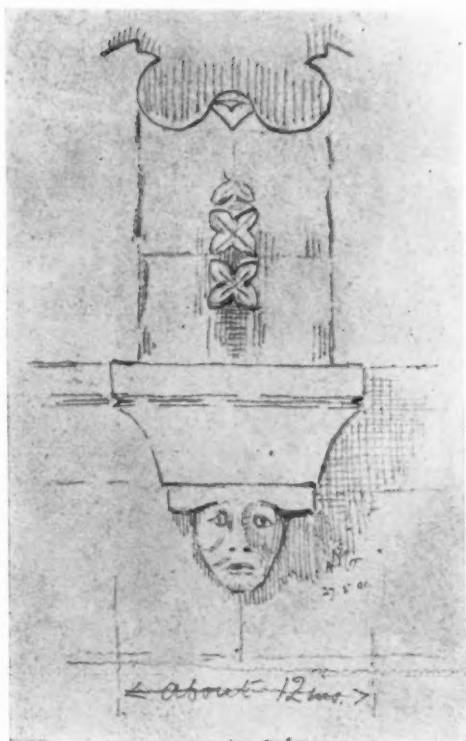


Fig. 213. Corbel, Impost and Vault Rib of Rotunda, Templar's Church, Loan.

seen from the photograph of a Romanesque archway at Louvain in Belgium. (Fig. 214).

The earlier examples are all fairly shallow, but as time went on the hollows became deeper, and by the middle of the 13th century the dogtooth was often scarcely discernible in these deep hollows. The effect produced was consequently, one would think, scarcely justified by the large amount of labor expended. That so much trouble should be taken to produce so slight a result as is indicated in the deep shadow in Fig. 215 may well be wondered at, if it were not known that the great Gothic carvers of that date spared no pains to obtain perfection in their work. The example is taken from the Chapter House of Lincoln Cathedral, but there is a very large amount of such work in England.

To what extent the diaper work of this same 13th century was derived

from the dogtooth it is impossible actually to say, but certainly there is a close resemblance between the one and the other—except, of course, that the diaper is a shallow ornament worked upon a surface. Fig. 216, however, is so very closely allied in its detail to Figs. 211 and 212 that it is impossible not to imagine that some connection must have existed, and it is by no means exceptional. It is one of many different forms of diaper ornament to be found in Westminster Abbey. There is a star-shaped four-leaved flower with a ball at the junction of the petals, which appears to have originally itself represented a small flower, while there are other flowers, probably primroses, introduced between the great petals, following the general tendency of the 13th century carvers to represent spring foliage.

Subsequently, this star-shaped arrangement of a flower becomes quite common; it is found in the latter part of the 14th and during the 15th cen-



Fig. 214. A Romanesque Archway at Louvain.

tury introduced as an ornament in a shallow hollow and varying in outline according to date. Two different forms appear in the portion of Humphrey de Bohun's Monument in Hereford Cathedral of which a sketch is given in Fig. 217; the leaves are now of a perfectly natural type, but the centre of one rep-

resents a flower bud while the centre of the other is itself a small four-leaved flower, remarkably like the dogtooth in its general suggestion. Later again it occasionally took some such entirely conventionalized form as is shown in Fig. 218, which is a late example from Yatton Church in Somersetshire.



FIG. 215. CAPITOL IN THE CHAPTER HOUSE, LINCOLN CATHEDRAL.

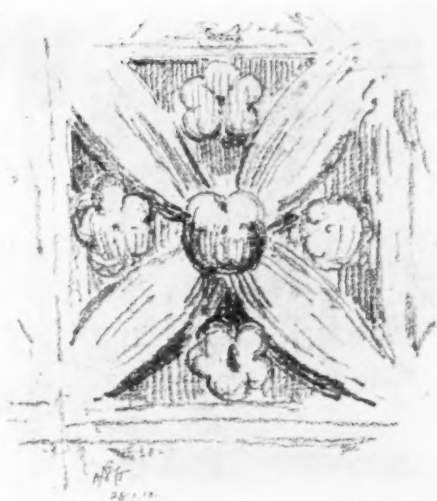


Fig. 216. 13th Century Diaper Ornament—
South Transept, Westminster Abbey.

These last examples belong to the 15th century or possibly even later.

During the intervening 14th century an ornament appeared in the west of England to which the name of "ball-flower" has been given. It was considered by all the older writers upon Gothic architecture to be the distinctive ornament of the Decorated period, but as a matter of fact it is only found in a few counties, where it was used largely, occupying the same position in the



Fig. 218. From Yatton Church, Somersetshire.

hollow mouldings of that period and district which was filled by the dog-tooth of the 13th century all over England. But as the hollows were not so deep the effect was a different one. These balls occurring in constant suc-



Fig. 217. Portion of Humphrey de Bohun's
Monument, Hereford Cathedral.



Fig. 219. Ball Flower from a Cast in the
Architectural Museum.

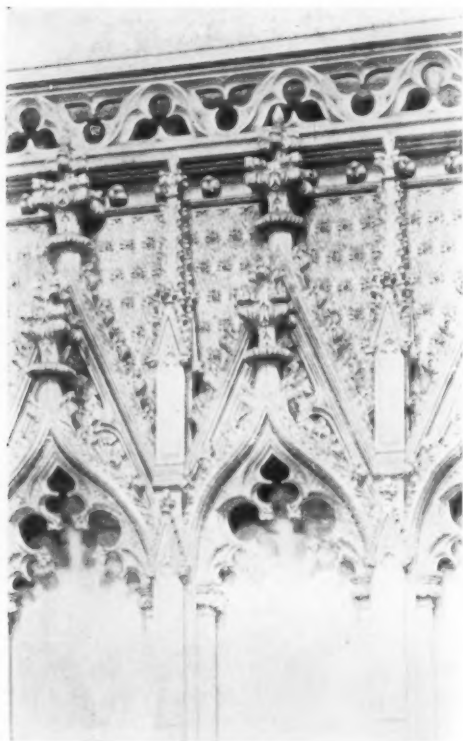


Fig. 220. Back of Reredos, Peterborough Cathedral.

cession all round the tracery as well as in the true mouldings of a window give it much the appearance of knotted lacework. A detail of one is shown in Fig. 219. An outer ball, like a seed pod, is slightly opened, displaying another one within it. A range of them occurs at the back of the reredos in Peterborough Cathedral, shown in Fig. 220, in the hollow cornice, though not so close together as in more typical examples, while the form is somewhat altered, probably owing to the fact that the work was executed in one of the eastern counties of England, where it is quite a rarity, and not in the west, where it is common. The outer petals, which are always three, are more pronounced and there is no sign of the inner ball.

Occasional examples are found in the 15th century of a combination of these motives. Fig. 221 shows a four-leafed

patera in the cornice of a 15th century tomb in Westminster Abbey. The general idea is just that of the leaves in De Bohun's tomb (Fig. 217), but the centre is a ball, as if the ball flower and the four-leafed flower were combined. Other similar examples are by no means uncommon; a considerable number are to be found in Tintern Abbey, but the ball is there divided into four instead of three parts.

Pateræ like these are not entirely confined to Gothic work. It is very rare indeed that one can trace Gothic influence in Renaissance ornament, but perhaps it is only necessary to introduce here an illustration of the pateræ in the arch soffit of Sta. Guistina at Padua (Fig. 222) for the similarity of motive to that of much of the late Gothic ornament to become at once apparent, with the advantage of indicating how large an amount of variation is possible of quite a simple original idea.

Diaper work is not always arranged on a diagonal or other regular scheme, at any rate so far as the pattern itself is concerned, for it is always in square or diamond-shaped blocks. Occasionally isolated leaves occupy the diapers, as in some of those in the rood screen of Southwell Minster; an example is given in Fig. 223. The relief is not great, and of course the form of the leaf is that which is indicative of the period.



Fig. 221. 15th Century Tomb, Westminster Abbey.

which in this case is the 14th century, when the work was done. Similarly, when leaves were used as minor enrichments in the 15th century, they also partook of the character of the time. An illustration of this will be found in Fig. 224, the leaf being here as unquestionably autumnal as is that shown in Fig.

became very common indeed during the 15th century—that known as the crenelle. It appears invariably upon the top of a cornice as a kind of cresting thereto, and has every appearance of having been derived from the embattlements of castle walls with their alternating embrasures. This is probably the

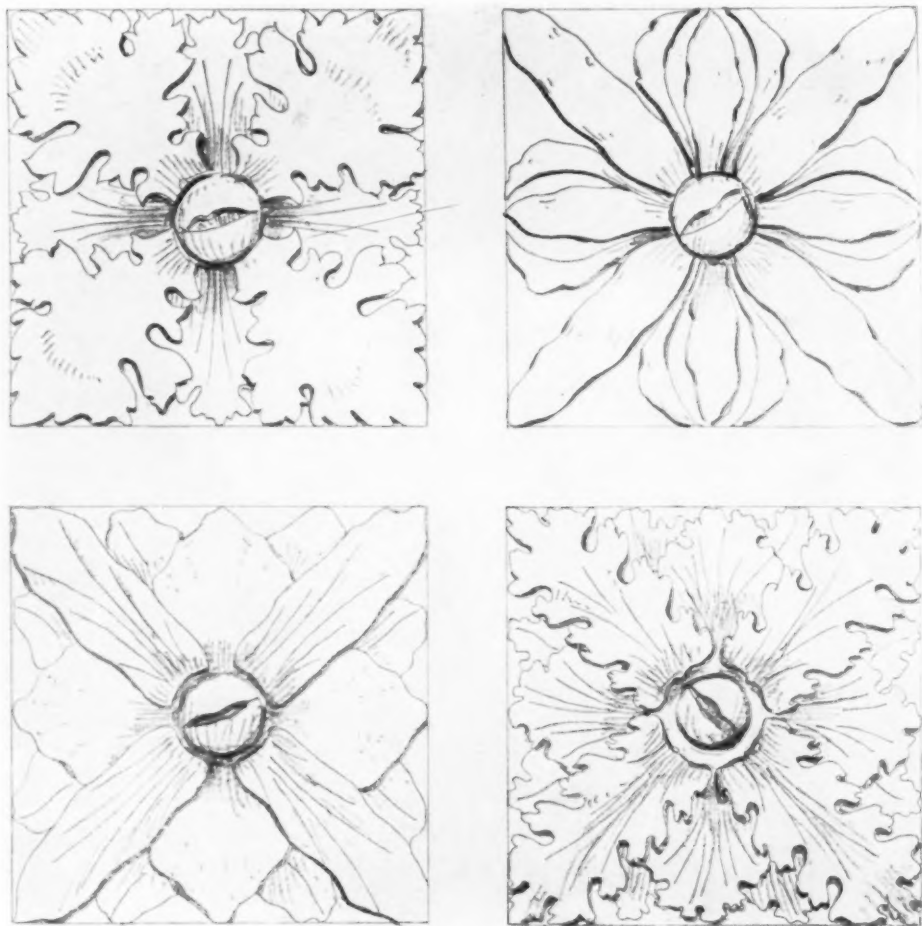


FIG. 222. DETAILS OF PANELS IN ARCH SOFFIT, ST. GUISTINA AT PADUA.

223, the open leaf of summer. It is one of a series of leaf enrichments in the hollow cornice moulding of the vestibule to Henry VII. Chapel, Westminster. A photograph of the exterior of a portion of the same building is given in Fig. 225, mainly with the object of illustrating a minor enrichment which

case, and if so it is perhaps the most prominent example which exists of what was originally a wholly essential feature in a building intended for defensive purposes, being afterwards employed in a purely decorative manner on a much smaller scale. Incidentally, this same photograph shows various smaller

enrichments in the quatrefoils of the panels. The portcullis, indicating Westminster, can be seen, and so can the fleur-de-lis, the sign that the building

was regal and that the Royal House claimed the sovereignty of France. The third enrichment which appears is a double five-leaved flower—the well-known Tudor rose, formed by placing the roses of York and Lancaster one above the other. There is some doubt whether the roses represented are wild dogroses or primroses; at any rate, they are five petalled flowers of some amount of similarity to those of which a sketch has just been given in Fig. 216.



Fig. 223. Diaper in Wood Scroll, Southwell Minster (1340 A. D.).

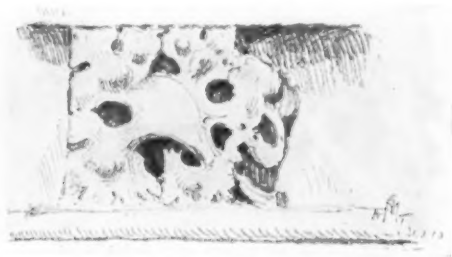


Fig. 224. Leaf Enrichment, Vestibule to Henry VII. Chapel, Westminster Abbey.

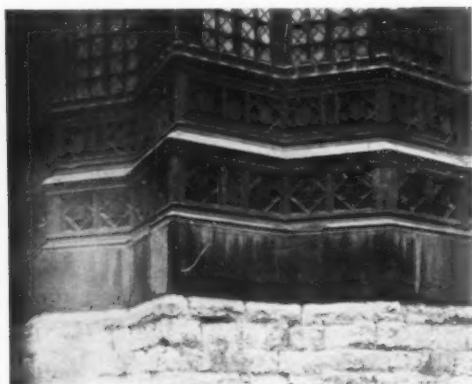


Fig. 225. Lower Part of Bay Window, Henry VII. Chapel, Westminster.

Editor's Note.—This article ends the series on "Evolution of Architectural Ornament." The first paper was published in the March, 1910, issue, and continued in the April, May, June, July, September, November and December, 1910, issues.

TECHNICAL DEPARTMENT

A MODERN DEPARTMENT STORE

The Construction and Equipment of the Philadelphia Wanamaker Building

THE AMERICAN DEPARTMENT STORE, an institution which includes almost every phase of complicated planning and equipment, together with thoughtful and skilful design, has been selected as a type for illustration and comment in this section of *The Architectural Record*. There have been many buildings of this class erected during the past decade, the architect and engineer of each having carefully and fully sought to combine all the inventions and manufacturers' devices which made for safety, comfort and convenience, that were available at the time of planning.

In the new Wanamaker building at Philadelphia are centered a group of technical and mechanical features which illustrate the highest constructive skill. The building itself is the keystone of a business arch unique in the history of the business world—a collection of power units, all converging to one meeting place, determined fifty years ago in the mind of the founder, now, thanks to the power which is making for modern efficiency, a concrete demonstration of original thought.

D. H. Burnham & Co., architects, of Chicago, have designed this building, as is stated in the text of the article on "Recent Philadelphia Architecture" in this issue of the *Record*. It remains to be mentioned here in a limited

way the more important features which make for the success of the building as a fully equipped department store—a store which must minister to the safety and comfort of thousands of people daily and which must provide light, heat, power and accommodation for all those under its roof.

The site of the new Wanamaker building is on that of a former structure used by Mr. Wanamaker as a department store. The difficulties of construction entailed in the erection of the new building were many and, in some features, without precedent. The services of an expert engineer were needed to accomplish what we may call a striking engineering enterprise. Mr. W. C. Haddock, as superintendent of construction, has solved the many problems which were encountered.

The building in its completed size extends over an entire city block, the lot covered being 250 feet in width by 480 feet in length. The structure is fourteen stories, or 270 feet, high from the curb level. The floor of the sub-basement is 36 feet below the street level.

The building is a steel, fireproof structure, as absolutely so as fireproof materials and the genius of construction can make it.

It was decided before the plans for the new building were fully matured

that excavations be begun under that portion of the old building which was least suitable for merchandizing. This section covered about 27 per cent. of the total lot area. This work was done very carefully, heavy yellow pine joists and girders being used, and the excavations being made to the full depth of the proposed new structure, building at the same time the concrete retaining walls. Then the foundations for the new columns were put in place, so that the sub-structure for the new building was completely ready for the erection of the steel before the old super-structure was torn down. This work was completed in about nine months, and was carried forward without a single mishap.

The first section of the old building was then razed, the erection of the steel columns for the first new section was actually begun, and this section was completed and ready for occupancy before any remaining portions of the old building were demolished. Practically the same plan was followed in the erection of the other two sections, with the exception that the excavation under the remaining old sections was not done until after they had been torn down.

The power plant in the old building was totally inadequate to supply even the demands of the first new section, and the new permanent power plant was, therefore, built simultaneously with the first new section. It was not completed in time to furnish power for operating the elevators in the new section, and the problem arose as to how to meet the emergency. By temporarily installing one of the series of duplex compound pumps, which was eventually intended for use in the new power plant, and working it in conjunction with one of the fire pumps of large capacity which was already in the old plant, the elevator service was taken care of until the new plant was completed. This compound duplex pump was constructed to run at 150 pounds pressure, and, as the old plant could not supply a greater pressure than 90 pounds, the efficiency of the new pump was very much reduced.

Considerable difficulty was anticipated

in taking care of electric lighting, as the new building was designed for three-wire system and the old power plant, having been built up through years of development of the lighting industry, contained various types of apparatus, both high and low potential, dating back to the early introduction of electricity as a lighting medium. The new power plant was, therefore, pushed to early completion, in order that light could be supplied to the new section when it was completed. The power is conducted from the power house to the store by a tunnel, through which all the steam, water, refrigeration lines and electrical cables are carried, so that now for handling the completed first section of the store building "electrically" temporary cables had to be run around the vault walls of the old store, running along the Thirteenth Street wall to Market Street and across the Market Street wall into the new building, and then through to the panel board in the old power plant, where changes were made which allowed the coupling of the old and the new systems together. As soon as these lighting circuits were carried over, it was necessary to take care of the remaining portions of the old building "electrically" from the new power plant because of the rapid decline of the old one. The temporary pumping plant that had been put in the old power plant for the first section of the new elevator system had to remain in use until the second section of the old building was demolished, and the excavations completed, because no such temporary provision could be made for the 22-inch water mains that are used for this very large system of hydraulic plunger elevators. As the old power plant was constructed to run under several different pressures, both as to water and steam, many intricate problems arose, owing to the necessity of still keeping in active operation all mechanical appliances of the remaining portions of the old store that were still in service. Some of the boilers in the new power plant were cut off and run at a lower pressure than the remaining boilers, and from these was carried an independent steam line to, and connected with, the main header in



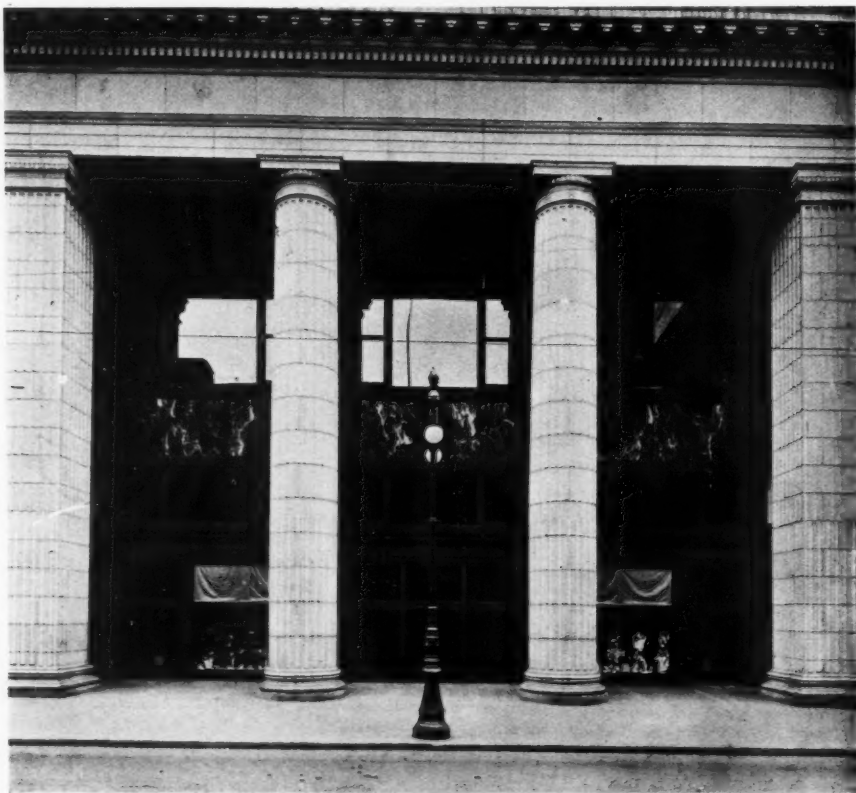
THE JOHN WANAMAKER DEPARTMENT STORE.
Philadelphia, Pa. D. H. Burnham & Co., Architects.

the old power house. Thus the pumps and other apparatus that still remained in commission were run practically under the same pressure under which they had been working previously, and the mechanical appliances of the old store were kept in operation without interruption.

The second section of the new store

lines and the electrical cable from the new power plant.

Anticipating the difficulty of tying the first and second sections together, so that there would be no break where the courses of granite are toothed into each other (as is usually the result), bench marks were placed on surrounding property and an accurate record kept of the



ENTRANCE DETAIL—THE WANAMAKER BUILDING.

Philadelphia, Pa.

D. H. Burnham & Co., Architects.

was begun about three months after the first was completed. This extended from the eastern side of the first section along Market Street to Thirteenth Street, and along Thirteenth Street to the mouth of the tunnel from the power house, thus making it possible to bring directly to the first and second sections of the new building the water and steam

settlement of the first section from the time of its commencement, when there was practically no load, to the time of its completion. It was found that under the full load the Market Street front showed a settlement of one-half inch. The stratification being the same, it was presumed there probably would be an equal compression of the soil and the



GRAND COURT—THE WANAMAKER BUILDING.
Philadelphia, Pa. D. H. Burnham & Co., Architects.



Newel Detail—The Wanamaker Building.
Philadelphia, Pa.

D. H. Burnham & Co., Architects.

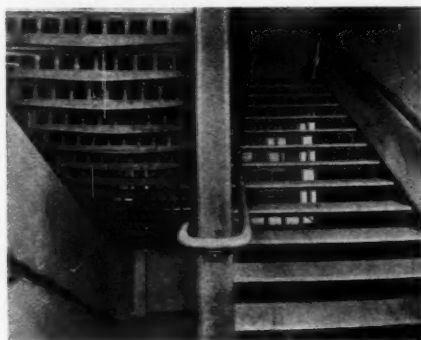
attendant settlement of the second section, and it was decided to increase the foundations under the first column so that there would be one ton less per square foot of load upon the soil under it. The foundations were then given one-quarter inch elevation, while the rest of the columns on the Market Street front were given one-half inch elevation. This calculation proved to be exact, as, after three years, no sign whatever of any separation at the joints of these two sections can be seen. Records were kept on the second section the same as on the first; but, as it was found that practically no settlement occurred, the rest of the foundations were continued of the same size, and the building erected without showing any evidence of separation at the joining of the third and final section to the first two.

The floor areas of the finished building are divided into three sections by means of two fire walls running through the entire width. Each section can be completely cut off from the others by closing the fire doors. There are three openings in each of the fire walls—one in the center and one on either side, with double fire doors with the latest fusible link device for releasing them in case of fire. At each end of these walls there are "tower fire escapes," each of which encloses two complete fireproof and smokeproof stairways of unique design. The accompanying photograph and drawing show these stairways. It will be noticed that one is above the other, so that both may be used at the same time without fear of congestion, which, however, is impossible, as the two ways never meet. Access to these fire towers is had through fire doors leading directly to the outside of the building. Escape is made at once to a balcony within the line of the building, but open to the street, the opening to the street being especially provided so that in event of fire the smoke can readily escape. There are seventy-six main stairways in the building.

Tanks on the roof of the building hold in reserve more than 80,000 gallons of water which, in case of a casualty, would be released through the mul-

titudinous automatic fire sprinklers scattered throughout the structure.

A marked and well-defined guarantee of safety, both for the employees and the uncounted thousands who visit the store, is the character and construction of the sixty-eight elevators installed in the building. They are of the "plunger type," direct hydraulic, which means that the plunger piston travels through a hole drilled through the solid rock directly under the elevator to a depth corresponding with the height that the elevator travels. This elevator system is also provided with skeleton iron doors which are drawn by the operator when the car is started and only withdrawn when the car stops, so that an accident

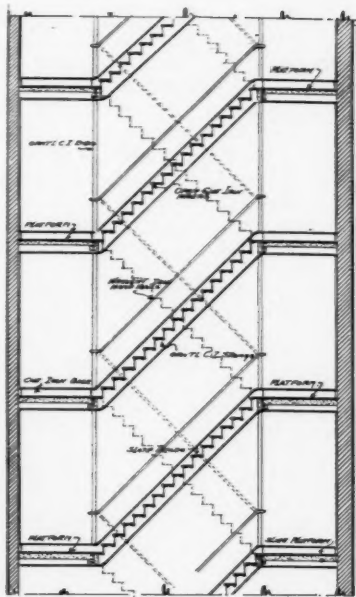


Double Fire Tower Stairs—The Wanamaker Building.

D. H. Burnham & Co., Architects.
Philadelphia, Pa.

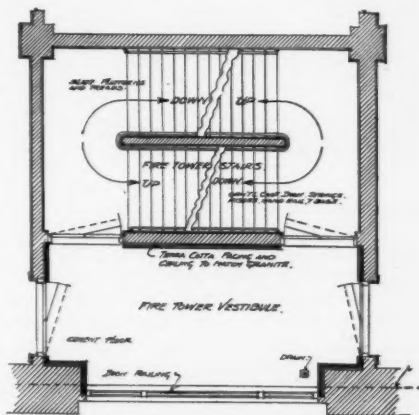
caused by the ascent or descent of the car is impossible. The pipes carrying water from the steam pumps for the elevator service alone, running in size from a diameter of 22 inches down, would make a tube $3\frac{7}{10}$ miles long. The plungers and the cylinders, in which the plungers are encased, if laid on the ground, would cover a distance of over $5\frac{1}{2}$ miles.

The whole building is heated by exhaust steam from the power plant. Heat is supplied to the basement, basement mezzanine, and main floors through coils located in the sub-basement. By means of fans, air is drawn in from outside the building, which, when heated by passing over these coils, goes through



SECTIONAL ELEVATION THROUGH FIRE TOWER STAIRS.

a curtain of water which washes out all suspended matter. Purified the air passes through reheating coils, from which it is distributed through galvanized-iron ducts by fans having a



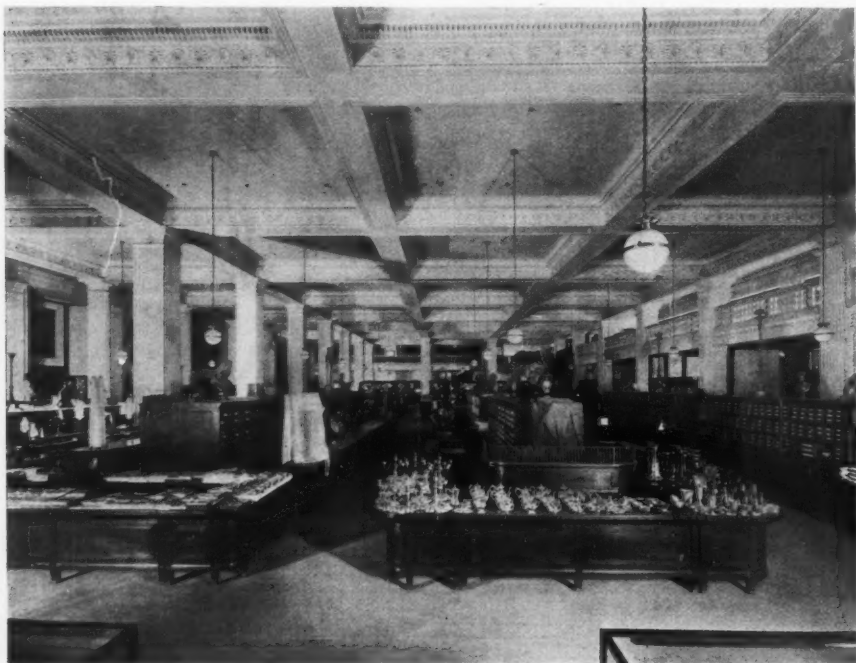
Plan, Fire Tower Stairs—The Wanamaker Building.

Philadelphia, Pa.
D. H. Burnham & Co., Architects.

capacity of 110,000 feet per minute. This air, heated in winter and cooled in summer, is circulated throughout the basements and to the entrance vestibules on the main floor. By this means the vestibules are kept warm, and the heat is distributed over the main floor automatically from the vestibules, for, when the outer doors are opened, the cold air rushes in, mixes with the warm air in the vestibule and passes into the store

ment mezzanine. A sufficient amount of air is supplied to entirely change the air in the basements three times every hour. The main floor and all of the other floors are splendidly ventilated, by means of the Grand Court located in the center of the building which has ventilating openings at the top, through which air is constantly passing out.

Unlike any other structure of its size and character, each floor of the north



MAIN FLOOR—THE WANAMAKER BUILDING.
(Showing large unobstructed area.)

Philadelphia, Pa.

D. H. Burnham & Co., Architects.

every time the inner doors are opened. Supplementing this vestibule heat are pedestal registers, located on either side of the vestibule doors, through which there is a constant supply of fresh air. There are four large, powerful fans used for exhausting the vitiated air from the basements. This vitiated air is drawn out through inlets that are built at frequent intervals in the floors of the basement, sub-basement and base-

and south sections of the store has an open area, entirely free from columns, 156 feet in length and 66 feet in width, supported by typical plate girders, 42 inches in depth. The steel floor beams are framed into these at the level of the top flange. The remaining portion of the girder extending below the ceiling is taken care of in the ornamental treatment of the building by having ceilings coffered and ornamental plaster cornices

used for the enveloping of the girder. The plaster work throughout the building, except on the floors devoted exclusively to stock rooms, is ornamental in its character and scope. On the main, first and second floors, the walls and the columns are done in Keene cement. The balance of the building is finished in hard, white plaster.

There are ten electric dumbwaiters which travel from the stock rooms di-

rectly to the delivery department in the sub-basement. The other spiral is used only from the stock-room floors and delivers directly to outlets located one on the basement floor, two on the main floor, and one on the first floor.

Two distinguishing features characterize the power plant. This building is located on the opposite side of the street from the Thirteenth Street elevation of the store. It is unique in that a build-



EGYPTIAN HALL—THE WANAMAKER BUILDING.

Philadelphia, Pa.

D. H. Burnham & Co., Architects.

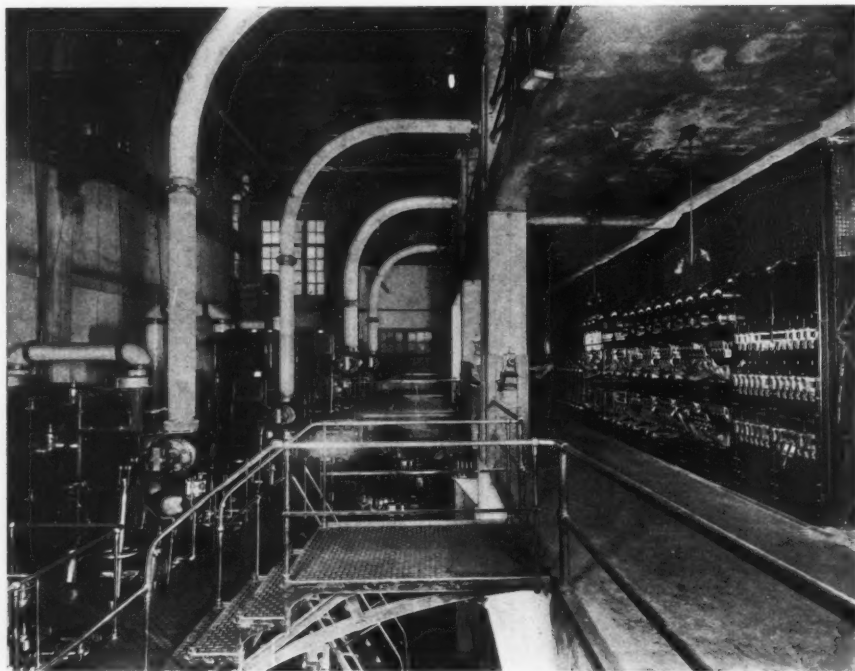
rectly to the selling floors. These are used for the quick delivery of stock to any of the departments needing it, and are practically the errand boys to and from the stock rooms. There are also installed four double spiral chutes, running from the top of the building to the sub-basement. One of the spirals in each chute is used for sending such goods as are wrapped and ready for delivery from any of the selling floors

ing of such large dimensions should be confined to such a small lot area—66 feet by 90 feet. The walls are erected two inches distant from the adjoining properties in order to prevent vibration outside of the building. The power is conveyed to the main store building by means of a tunnel, which is filled with a maze of massive pipes and tubes. There are two vertical cross-compound engines, 30 inches and 52

inches by 36 inches, direct-connected to two generators of 500 K. W. each. These engines, at a speed of 115 r. p. m., and 140 pounds of steam, develop approximately 1,600 I. H-P. at the most economical point of cut-off, when generators are at full load of 1,000 K. W., and are capable of a continuous load of 2,000 H-P. on an overload of 25 per cent. Back of these are three vertical, cross-compound engines, 18 inches and 30 inches by 30 inches, direct-connected

000, 16-c. p. incandescent lamps, or 5,500 arc lights. Each unit has a recording watt-meter by which all current consumed is accurately measured. When all power is in operation, it is expected to use about 1,000 H-P. in ventilation, pumping water, factory service, etc.

All of these units, amounting to 5,400 H-P. engines, and 3,050 K. W. generators, are located on a floor, 33 feet by 83 feet, and are served by a 10 H-P. electric traveling crane.



ENGINE ROOM—THE WANAMAKER POWER HOUSE.

Philadelphia, Pa.

D. H. Burnham & Co., Architects.

to two generators of 175 K. W. each. These engines, at a speed of 150 r. p. m., and 140 pounds steam, develop approximately 575 indicated horse-power at the most economical point of cut-off, when generators are at full load of 375 K. W., and are capable of a continuous load of 725 indicated horse-power on an overload of 25 per cent.

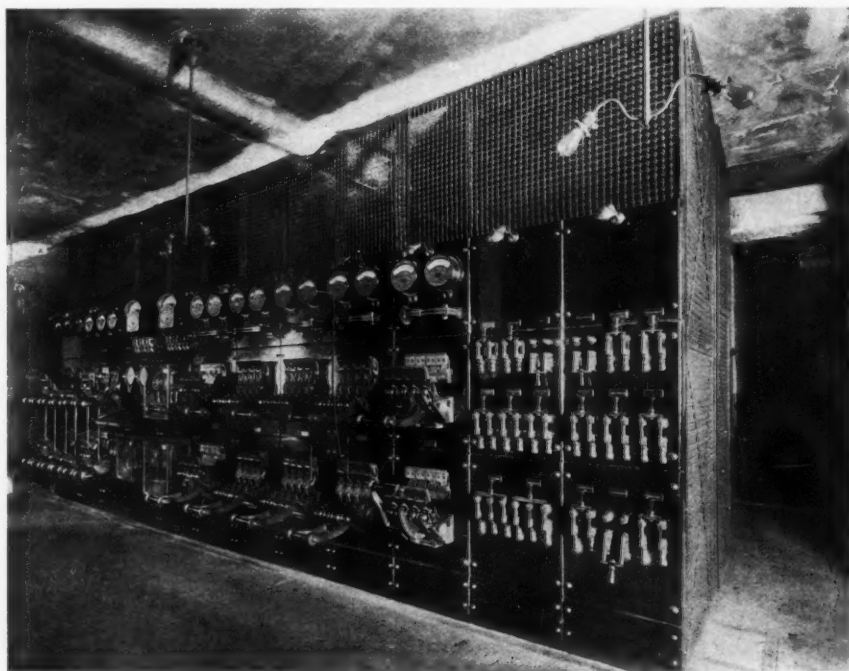
The full current developed at normal load is 26,520 amperes at 115 volts. This current is capable of lighting 50,-

At the left of the engine floor, and on a gallery above, overlooking the entire sweep of machinery, the distributing and bench-boards are located. The main distributing board is so arranged that all lighting is measured and distributed from the right-hand end, and all power from the left-hand end. Each line is controlled by a circuit breaker, which is non-closable on overload, and by their use no switches are required. From this board forty-eight 2,000,000

C. M. cables have been run to three sub-distribution boards located in the store sub-basement. From these boards connections are run to all load centers. There is a separate circuit run directly from main board to fire pump located in store sub-basement. The circuit of each generator is controlled by a motor-operated circuit breaker placed directly alongside of the generator and operated from the bench-board on the gallery. On this same gallery is located

pumps, there is a compound duplex pump with a capacity of 1,100 gallons per minute, which is used for night elevator service. In this room there is also the air compressor for charging the elevator tanks with air, and the hot well and pumps for returning water of condensation from store heating system to boilers and other auxiliary apparatus.

On the gallery above the switchboard floor is located the steam-distributing header. The header receives all steam



ELECTRICAL SWITCHBOARD—THE WANAMAKER POWER HOUSE.

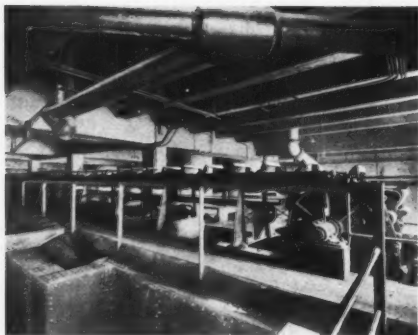
Philadelphia, Pa.

the elevator surge tank with a capacity of 30,000 gallons.

On the left of the engine room, and on a lower level, may be found the elevator pump room. Here are three large steam-driven, triplex, fly-wheel pumps, each with a capacity of 2,100 gallons per minute, or a total daily capacity for all three pumps of 9,000,000 gallons, which is enough water to supply a town of 150,000 people with 60 gallons per capita per diem. In addition to these

from boilers and distributes to engines and pumps.

On the first full floor above the engine room is the boiler auxiliary floor, on which is situated the boiler feed-pump apparatus for heating the water for boilers and the force-draft fans. On this floor the coal conveyor runs from front to back and the ashes are dropped into the conveyor from hoppers under boiler-room floor; then the conveyor takes ashes to ash bin, from which they



Coal Conveyor—The Wanamaker Power House, Philadelphia, Pa.

are drawn into a wagon on the street, by a pipe in the floor. There are also two centrifugal pumps on this floor which circulate hot water throughout the great building for toilet and other purposes. All the apparatus on this floor is in duplicate excepting the ash and coal conveyor.

Above the boiler auxiliary floor is to be found the boiler room. This is a large, airy room in which are located eight water-tube boilers of 600 H-P. each, which require 18,000 gallons of water per hour, or at the rate of 432,000 gallons every twenty-four hours. In the winter all the water condensed in the heating system of the store is returned to the boilers with the necessary make-up water supplied automatically. In the summer the cooling water from the ice-plant is utilized for boiler feed. To properly heat and light the store, it takes 40 to 70 tons of rice coal per day. The store is entirely heated with exhaust steam, excepting on cold nights and holidays, when live steam has to be used. In the coldest weather the exhaust steam from the engines and pumps is sufficient to heat the store and furnish hot water for boilers and store.

Above the boilers is the 5,000-ton coal bin. The conveyor which carries the coal to this bin has a vertical lift of 114 feet and a capacity of 40 tons per hour. The coal is delivered to a hopper under the street and is caught by the conveyor and distributed the entire length of the bin. All the coal handling

is attended to by one man. The coal is then fed to the boilers by pipes at the bottom of the bin. In front of the coal bin is situated the ash bin, which is filled by the same conveyor and has a connection to the street through a large pipe, which is used for filling the wagons with ashes. On the same floor are the induced draft fans with their stacks to the roof. On this floor, also, are the hot-water heaters for heating water used in the store kitchens and for toilet purposes. The water can be heated with exhaust or live steam as best suits the exigencies of the hour.

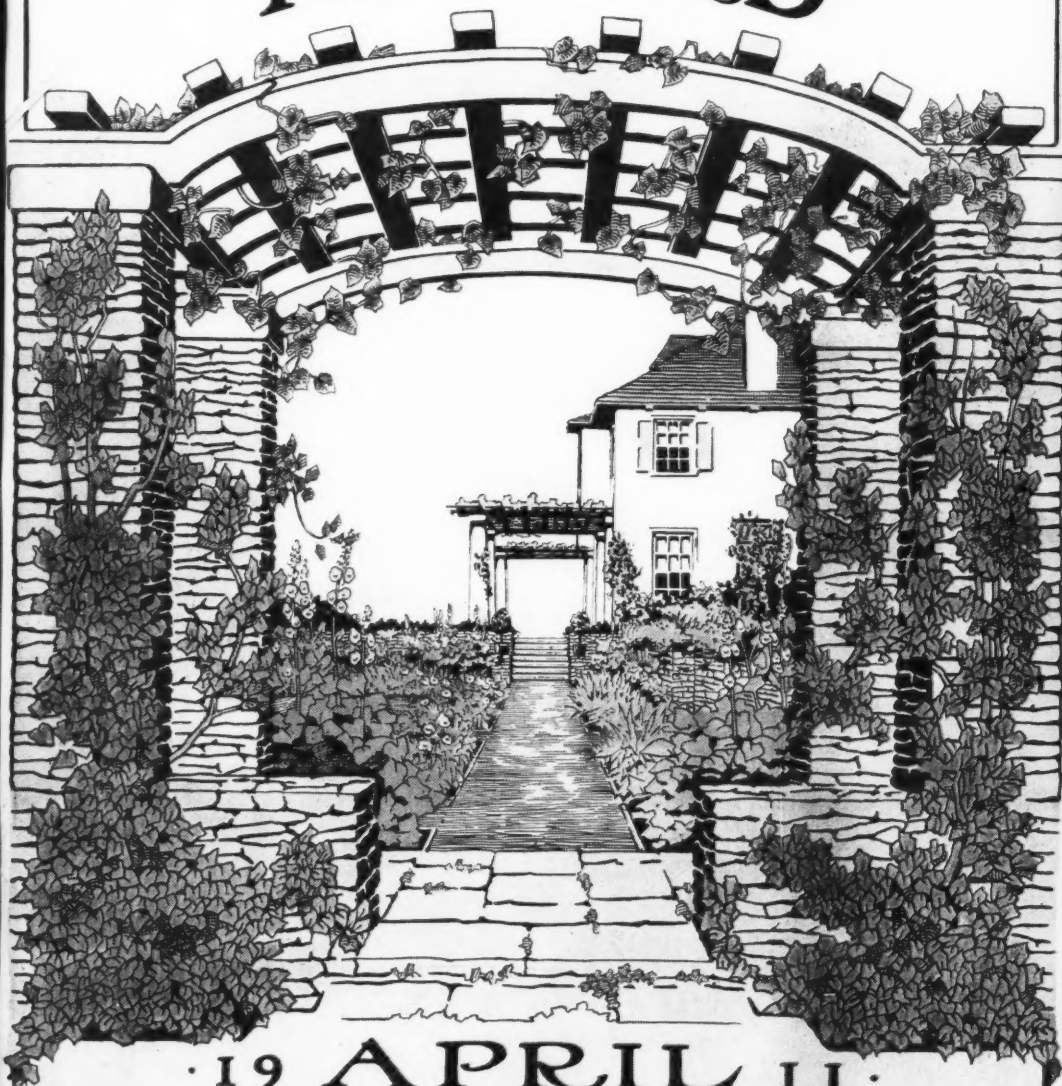
On the top floor are located the repair shop and the refrigerator plant. The refrigerating machinery is of the absorption type and runs on exhaust steam when the water is supplied at 60 degrees or lower. Each one of the machines has a capacity of 75 tons. One machine alone will properly cool the mammoth fur vault of 161,000 cubic feet, and the 50 ice-boxes and refrigerators in the kitchens. All the drinking water (about 1,000 gallons per hour) is filtered and chilled in this plant and distributed throughout the store.



Boiler Room—The Wanamaker Power House, Philadelphia, Pa.

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